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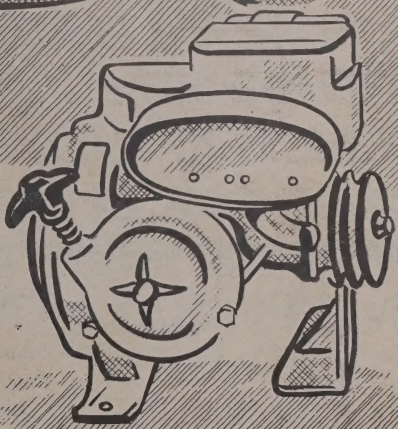
SURPLUS

MODEL

KB6-F



RADIO SUPPRESSED

ENGINE SPECIFICATIONS AND OPERATION INSTRUCTIONS

C-4DE

NOTICE

THIS IS THE RADIO SUPPRESSED KB6F INSTRUCTION AND PARTS LIST BOOKLET. FOR CLEAR ILLUSTRATION OF SHIELDED PARTS CONSTRUCTION, REFER TO FIGS. 10, 11, 12, AND 13 ON PAGES 37 AND 38. USE THE REGULAR PARTS LIST WHEN ORDERING. DO NOT ORDER FROM EXPLODED VIEWS.

KIEKHAEFER CORP.
CEDARBURG, WIS.

General Specifications Gasoline Engine

Make	Kiekhaefer "Mercury"
Model	Radio Suppressed KB6F-9
Operating Cycle	Two Stroke
Number of Cylinders	Two
Firing Order	Alternate
Cylinder Bore	2 1/8 Inches
Stroke	2 1/8 Inches
Piston Displacement	15 Cu. In.
Cooling	Air Cooled by Centrifugal Fan
Brake Horsepower at 3800 R.P.M.	Six
Governor Setting	3800 R.P.M.
Governor	Centrifugal
Carburetor	Float Feed-Dual Adjustment
Ignition	Magneto
Power Transmission to Compressor	Double V-Belt
Fuel....One-half U.S. Pint OE-30 (Oil, Engine SAE-30, Thoroughly Mixed with one U.S. Gallon Gasoline. Read " Engine Lubrication. "	
Fuel Tank Capacity	3 U.S. Quarts
Recommended Spark Plugs	Champion XEJ7J

LUBRICATION

Engine

Engine lubrication is provided by mixing OE-30 (oil, engine SAE-30) with the gasoline in the recommended proportion of $\frac{1}{2}$ U.S. pint of oil to each U.S. gallon of gasoline.

WARNING: Do not use detergent or Diesel engine type oils.

IMPORTANT: Before pouring fuel into tank, mix oil and gasoline thoroughly with a paddle in an open container.

Gear

Lubricate accessory drive gear compartment with a grease gun through grease fitting (SKA-1645) located in bottom of crankcase. GO (lubricant, gear, Universal) should be applied to this fitting every eight hours of operation.

When operating in temperature above +32° F., use GO-90 (lubricant, gear, Universal SAE-90). In temperatures below +32° F., use GO-80 (lubricant, gear, Universal SAE-80).

Governor

Governor is lubricated with OE-30 (oil, engine SAE-30) every 8 hours as follows: Remove oil level plug (SKA-1644) and, with engine in level position, add oil through oil cup (SKA-4009) until oil shows at lower edge of plug hole. Oil will then be at correct level. Be sure to replace oil level plug before operating engine.
Governor linkage bearings should be lubricated with a few drops OE-10 (oil, engine SAE-10).

Magneto

Lubrication of the magneto in the field is unnecessary and inadviseable. See "Servicing Ignition System." Page 16.

BEFORE STARTING ENGINE:

1. Check oil level in compressor and be sure it is at the proper level.
2. Open air outlet valves on receiver tank.
3. Check fuel tank to be sure it is filled with correct fuel mixture.
4. Open fuel tank cap vent screw (SKA-8819) by turning it counter-clockwise.
5. Open fuel tank shut-off valve (SKA-2575), located on lower part of fuel tank (drive pulley side). See Fig. 1 Page 3.
6. Throw shorting toggle switch, (SKA-10002), located on top of fan housing, to "IGNITION" position. IMPORTANT:ENGINE WILL NOT START IF SWITCH IS ON "OFF" POSITION.

Starting Engine

1. Set choke valve in fully-closed position by pulling choke knob (A-1077) all the way out.
2. Pull starter handle (MB-2078) upward with a quick, vigorous stroke. Continue to operate starter until engine fires. Engine is then primed for starting.
3. Set choke valve in fully-opened position by pushing choke knob (A-1077) all the way in.

4. Operate starter the same as in priming engine. As soon as engine starts, adjust choke as necessary to keep engine running until it has warmed up. Under no condition will engine continue to run with choke knob pulled all the way out.

5. As engine warms up and begins to misfire due to an over-rich mixture, gradually push choke knob inward toward open position. After engine has reached normal operating temperature, choke should be pushed all the way in to fully-opened position.

6. If engine has been warmed up or is hot from previous operation, it is not necessary to use choke in starting.

7. Should engine become flooded and fail to start, choke should be in fully-opened position (choke knob pushed all the way in) and engine cranked vigorously. This will exhaust the excess fuel.

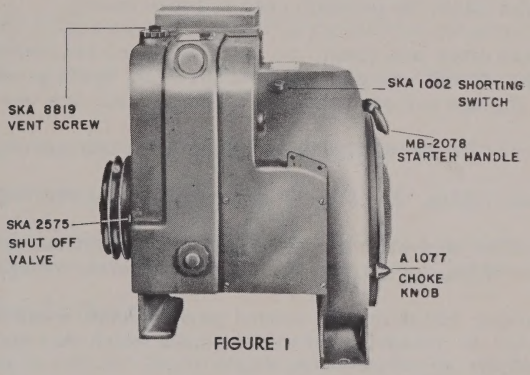


FIGURE 1

To Stop Engine

1. Throw shorting toggle switch, (SKA-1002), located on top of fan housing, to "OFF" position. This switch short circuits the magneto.

2. Close fuel shut-off valve.

3. Close fuel tank cap vent screw.

Inspection

1. Clean engine and compressor.

2. Remove and clean fan screen (SKC-1542). A dirty, clogged screen will interfere with cooling.

3. Inspect entire unit for loose screws, nuts, bolts, etc.

4. Remove Spark Plug Cover SKB-12015 and check spark plug terminal nuts for looseness.

5. Oil governor linkage with light oil.

Periodic Inspection

This inspection procedure should be followed at regular intervals depending on climactic conditions, but should not exceed 100 hours of operation.

1. Clean power unit. Remove obstructions from fan screen and air cleaner. Also remove air passage clean-out cap and clean out any dust, dirt or foreign particles which may have accumulated.

2. Close fuel tank shut-off valve. Remove fuel line and drain fuel from tank. Blow out fuel line and shut-off valve with compressed air. Reinstall parts and refill fuel tank.

3. Remove drain screw from carburetor bowl. Drain fuel and flush bowl by opening fuel shut-off valve for an instant. In replacing drain screw, be sure gasket is in place under screw head.

4. Inspect for broken, missing or damaged parts. Also, check nuts, bolts, screws, etc., for tightness.

5. Inspect starter cable for possible need of replacement.

6. Remove spark plugs and clean. Do not take apart for cleaning; use a sand-blast cleaner. Check gap and adjust to .025" by bending outer electrode as necessary. If plugs are not in good condition, install new ones.

7. Check governor-to-throttle linkage for binding or excessive play.

8. Check ignition timing. See Step 18 under "Reassembling Engine". Page 15

9. Remove muffler and examine exhaust ports for excessive accumulation of carbon. See "Cleaning Carbon From Exhaust Ports." Page 11

10. Start engine and check for all-around performance. Note any irregularities in performance or unusual mechanical noises which may indicate developing trouble.

IF ENGINE FAILS TO START, IT MAY BE DUE TO ONE OR MORE OF THE FOLLOWING CONDITIONS:

1. Fuel tank empty. Refill tank with recommended fuel mixture.
   Shorting switch on "OFF" position. Throw switch to "IGNITION" position.
2. Fuel shut-off. Open fuel shut-off valve.

3. Fuel feed line clogged. Remove feed line and clean out with compressed air or a piece of wire.

4. Spark plugs fouled. Remove spark plugs, clean and reinstall.

5. Engine flooded. Close fuel shut-off valve, remove spark plugs and crank engine several times. Keep fuel shut-off, reinstall spark plugs and crank engine several more times. This procedure will exhaust excess fuel.

6. No spark or very weak spark. See "Servicing Ignition System." Page 16

IF ENGINE STARTS BUT RUNS IRREGULAR AND MISSES, IT MAY BE DUE TO ONE OR MORE OF THE FOLLOWING CAUSES:

1. Fuel tank cap vent clogged. Remove cap, take out vent, screw, and blow out with compressed air.

2. Fuel feed line obstructed. Remove feed line and clean out with compressed air or a piece of wire.

3. Carburetor air intake screen clogged. Screen must be free of any obstructions.

4. Defective spark plugs. See that spark plugs are clean and gaps are correctly adjusted. If condition of plugs is questionable, install new ones.

5. Water or dirt in carburetor. Open tank cap vent screw and close fuel shut-off valve. Remove carburetor bowl drain screw and gasket. Drain bowl and flush out sediment or water which may be present in bowl. Reinstall bowl drain screw and gasket.

6. Carburetor air leak. Check carburetor stud nuts for tightness.

7. Poor compression. Check compression of each cylinder by operating starter slowly.

8. Intermittent short or open circuit in wiring. Check wiring for damaged insulation and loose or corroded connections.

9. Weak or intermittent spark. See "Servicing Ignition System." Page 16.

10. Defective intake valve reeds. See Step 1 under "Reassembling Engine." Page 12.

11. Carburetor out of adjustment. See "Adjusting Carburetor." below.

Adjusting Carburetor

Carburetor is correctly adjusted before unit leaves the factory, and further adjustment should not be necessary, except for operation in extreme temperatures.

Before Adjusting Carburetor

Before attempting to correct faulty engine performance by readjusting carburetor, check for other possible remedies as outlined in "Troubles Encountered in Engine."

Adjustments Provided

Carburetor is provided with two adjustable needle valves, one for idling speed mixture, the other for high speed mixture. Idling speed needle valve (SKA-3019), with knurled head, turns to right (inward) for richer mixture, to left (outward) for leaner mixture. High speed needle valve (SKA-3023) turns left (outward) for richer mixture, right (inward) for leaner mixture.

How to Adjust Carburetor

If it is known that faulty engine performance is due to carburetor being out of adjustment, readjust as follows:
Start engine and, after it has warmed up thoroughly, set choke in fully-opened position (choke knob pushed way in).

High Speed Adjustment--With engine running at normal maximum operating speed and under normal load, loosen gland nut on high speed needle valve and turn needle valve to right (inward) until mixture becomes too lean and engine starts to miss and slow down; then back it up slowly (1/4 to 1/2 turn) until engine runs smoothly.

Idling Speed Adjustment--Idling speed adjustment must be made without load; therefore first loosen and remove drive belts. Start engine and hold governor to-throttle rod in closed-throttle position. Turn idling speed needle valve inward until engine starts to fire unevenly due to an over-rich mixture; then back it up

slowly to position where best idling performance is attained. Lock needle valve in this position by tightening lock nut.

Reinstall and adjust drive belts. Again start engine and recheck high speed mixture; readjust if found necessary. Then lock needle valve in position by tightening gland nut securely.

Gasoline Engine

1. Remove air passage clean-out cap.

2. Start engine and allow it to run at normal operating speed.

3. Inject two ounces of rust-preventive oil (U.S. Army Specification AXS-674) into carburetor choke through clean-out passage opening. Stop engine as soon as excessive exhaust smoke indicates oil is passing through.

4. Drain fuel from tank by removing carburetor bowl drain plug (SKA-3014) and opening fuel shut-off valve. Replace bowl drain plug, close fuel shut-off valve and tighten fuel tank vent screw.

5. Remove spark plug, inject one ounce of rust preventive oil (U.S. Army Specification AXS-674) into each cylinder and replace spark plugs.

6. Operate starter vigorously, six full strokes. This will distribute the rust preventive oil on cylinder walls, rings and spark plugs and will force some of it into muffler and exhaust pipe.

7. Plug exhaust pipe opening with a cork or wooden plug.

DISASSEMBLING ENGINE

1. Remove starter assembly (SKD-1121 DXA) by taking out the three hexagon-head cap screws (SKA-1598) and plain washers (SKA-1616) which secure starter housing to fan housing (SKD-9941) and to starter support stud (SKA-1484). For complete details on disassembling starter assembly see "Servicing Starter Assembly." Page 18

2. Remove muffler (SKC-2878), cylinder cover (SKB-1724) and exhaust manifold (SKB-1443D). First remove the four nuts (SKA-2118) and washers (SKA-1551) from exhaust manifold studs (SKA-1903); also remove the 6 (SKA-1636) and 1 (SKA-1662) cover screws. Muffler, cylinder cover and exhaust manifold are then free to be removed from studs.

Note that three gaskets are assembled on each pair of exhaust manifold studs --one on each side of exhaust manifold and one between cylinder cover and muffler. In reassembling engine, new gaskets must be reinstalled in the same locations.

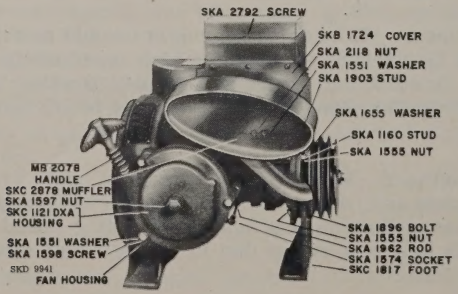


FIGURE 2

3. Disconnect spark plug wires. First remove spark plug cover from top of fuel tank and disconnect spark plug wires (SKA-9954A) from spark plugs. Then remove magneto cover(SKA-1496-1)which is secured to fan housing and to fuel tank with four screws (SKA-1662). Next remove magneto end cap shield cover (SKA-9891) fastened by two screws (SKA-9965). Spark plug wires may now be pulled out of magneto end cap, and ignition wire shields (SKA-9942A) can be withdrawn from magneto end cap shield (SKC-9887) after removing shield bushing nuts (SKA-9955). Do not remove spark plug wires from fuel tank unless they require replacement.

4. Remove fuel tank. First close shut-off valve (SKA-2575). Then disconnect fuel line (SKA-1663A) from shut-off valve (SKA-2575) and from carburetor connection (SKA-1638). Next remove the two fuel tank-to-cylinder screws (SKA-1622) , the fuel tank-to-crankcase screw (SKA-1581) and the fan housing-to-fuel tank screw (SKA-1658). Fuel tank is then free to be removed.

5. Remove fan assembly. First remove fan screen (SKC-1542) by prying it off of fan housing with screwdriver. Then pull fan from crankshaft taper with fan puller (SKA-1788)as follows: Remove fan hub nut (SKA-1651) with a 5/8"

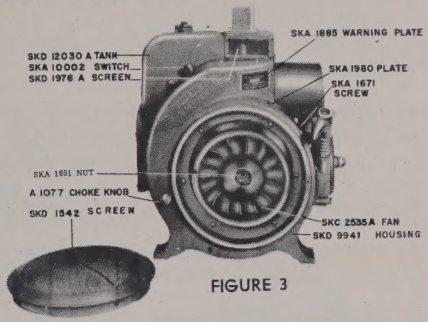


FIGURE 3

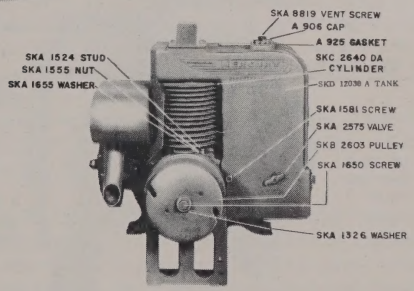


FIGURE 4

socket wrench. Thread puller into center of fan and draw it up tight. Strike end of puller sharply with a small hammer. Retighten puller and strike again. Repeat this procedure until hub is free. Only light hammer blows are required; heavy blows are likely to result in damage to crankshaft or to crankshaft ball bearings. Note that fan hub is keyed to crankshaft (key number SKA-1643).

6. Remove fan housing. Disconnect shorting switch wire from magneto terminal by unscrewing nut (SKA-9937) from fitting, shorting wire--magneto (SKA-9933). The entire shorting switch and wire will now be hanging free from the fan housing. The switch can be removed from the fan housing by unscrewing Nut, toggle switch to fan housing lock (SKA-9955), on the top of the housing. Remove the two governor-to-fan housing screws (SKA-1581) and the two hexagon head cap screws (SKA-1659) with lock washers (SKA-1660) which secure fan housing to crankcase. Also unscrew choke knob (A-1077). Fan housing

is then free to be removed. Choke rod spring (SKA-1627) should also be removed at this time so it will not be lost.

7. Remove drive pulley(SKB-2603DA).First remove crankshaft end screw (SKA-1650) and washer (SKA-1326). Drive pulley can then be pulled from crankshaft as follows: Insert puller abutment pad (SKA-1732) into end of crankshaft and mount puller bar (SKA-1694) with two 1/4''-20 x 2'' long cap screws (SKA-1733), threaded into holes provided for that purpose in pulley face. Draw cap screws down snug. Then thread the 3/8'' - 16 x 3'' long square head puller screw into center of puller bar and draw it down until pulley comes off of shaft. Note that pulley is keyed to shaft (key number SKA-1558).

8. Remove mounting foot (SKC-1817). This requires removal of 2(SKA-1896)& 1 (SKA-1928)bolts,plain washers (SKA-1655) and nuts (SKA-1555) which secure mounting foot and bearing housing to crankcase.

9. Remove cylinders. First remove spark plugs with spark plug wrench (SKA-1689). Then remove nut (SKA-1555) and plain washer (SKA-1655) from each of the eight cylinder studs (SKA-1524). Lift each cylinder free of studs and slide it carefully off of piston.

10. Remove pistons (SKB-1510) Piston pin (SKA-1468) is secured in piston by means of spring-wire lock rings (SKA-1473) which fit into grooves in piston pin bosses, one at each end of pin. Remove lock rings with pliers. Pin can now be pushed out. Note: It may be necessary to tap pin out of piston. If so, hold piston in such a manner that there will be no possibility of bending connecting rod.

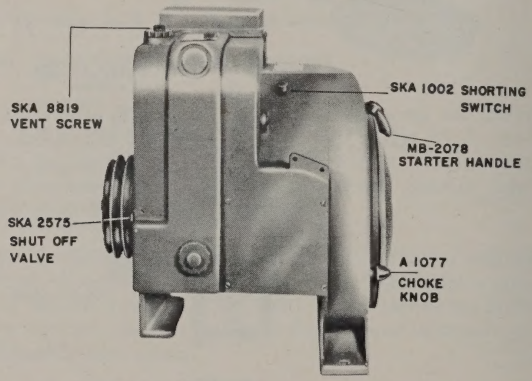


FIGURE 5

11. Remove connecting rods. Before removing rods, note that both rod and cap, have a punch mark on one side. These punch marks were applied when rods and caps were machined, and cap must always be assembled to rod so punch marks are on same side; also, each cap must remain with rod from which it was removed. If caps are turned around or interchanged, bearing race halves will not match as required. Remove connecting rod screws (SKA-1653) from one rod and remove rod from crankshaft (SKC-1414). Rod cap and bearing rollers (SKA-2445) will then be free to fall into crankcase. Be sure cap and all 28 rollers are recovered before proceeding with removal of second rod. Reassemble cap to rod and wrap the 28 rollers in paper. Then remove second rod and proceed in the same manner. Be sure to keep each set of 28 rollers with the rod from which they were removed.

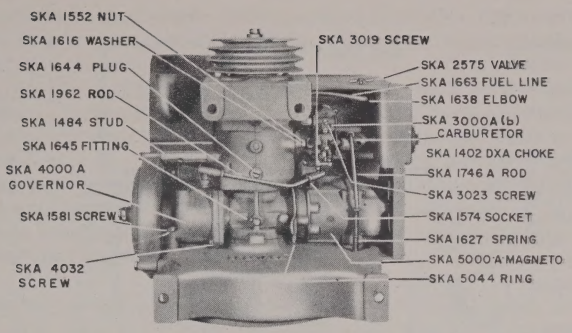


FIGURE 6

12. Remove carburetor (SKA-3000A) and choke assembly (SKA-1402DXA). Disconnect choke rod (SKA-1746A) from choke shaft lever by pulling out cotter pin (SKA-1571) at the end of rod. Next remove the two carburetor stud nuts (SKA-1552) and lock washers (SKA-1616). Disconnect governor-to-throttle control rod (SKA-1962) from carburetor throttle lever. Carburetor and choke assembly are then free to be removed.

13. Remove magneto. Cut lock wire (SKA-1754) and pull it out of magneto support sleeve screw heads. Then remove support sleeve screws (SKA-1615) and plain washers (SKA-2023). Magneto, with drive assembly remaining assembled on it, can then be pulled out of crankcase.

14. Remove governor. First remove starter ratchet (SKA-1316) from governor shaft (right hand thread). Then disconnect governor-to-throttle control rod (SKA-1962) and governor spring (SKA-4027). Next remove the four housing screws (SKA-4032) and washers (SKA-1551). Governor housing can then be separated from flange.
Free governor flange assembly from crankcase by removing the two governor mounting screws (SKA-1581) and lock washers (SKA-1947) and pulling flange assembly out of crankcase.

IMPORTANT: Note combination of .005'' and .015'' paper gaskets and .010'' steel shims assembled between governor flange and crankcase. In reassembling engine, new gaskets and shims equalling the same total thickness of those removed must be reinstalled to restore original backlash between accessory drive gear and governor drive gear.

15. Remove rear bearing housing. Remove the two bearing housing stud nuts (SKA-1555) and plain washers (SKA-1655). Then pull bearing housing from crankcase as follows: Insert puller abutment pad into end of crankshaft and mount puller bar (SKA-1694) with the two 1/4'' - 20 x $3\frac{1}{2}$'' cap screws (SKA-1815) threaded into holes provided for that purpose in bearing housing flange. Draw cap screws down snug. Thread the square head puller screw SKA-2330 into center of puller and turn it down to draw bearing housing out of crankcase.

IMPORTANT: Note combination of gaskets and shims assembled between bearing housing flange and crankcase. These gaskets were fitted in original assembly to correctly adjust position of accessory drive gear in relation to governor drive gear and magneto drive gear. In reassembling engine, new gaskets equalling the same total thickness of those removed must be reinstalled to restore original setting.

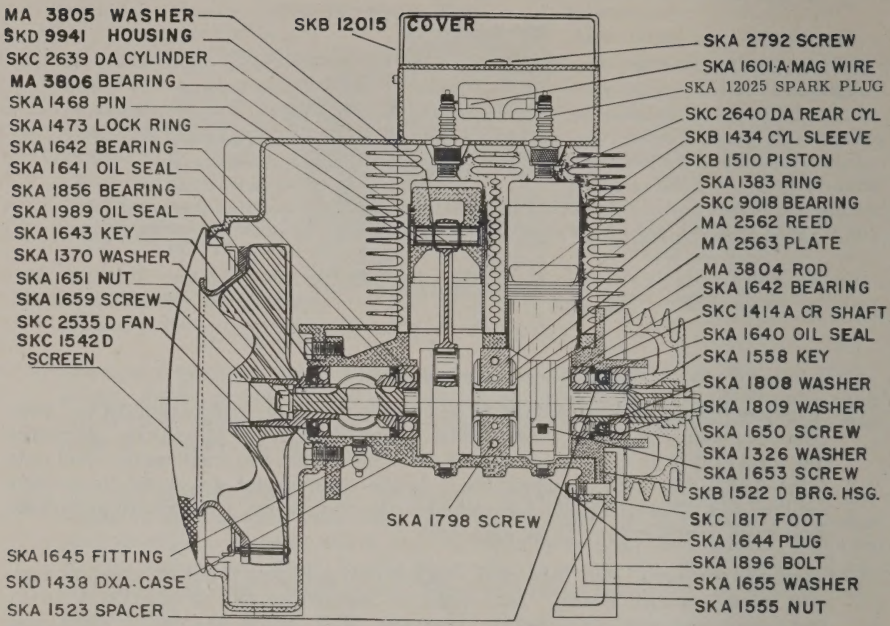


FIGURE 7

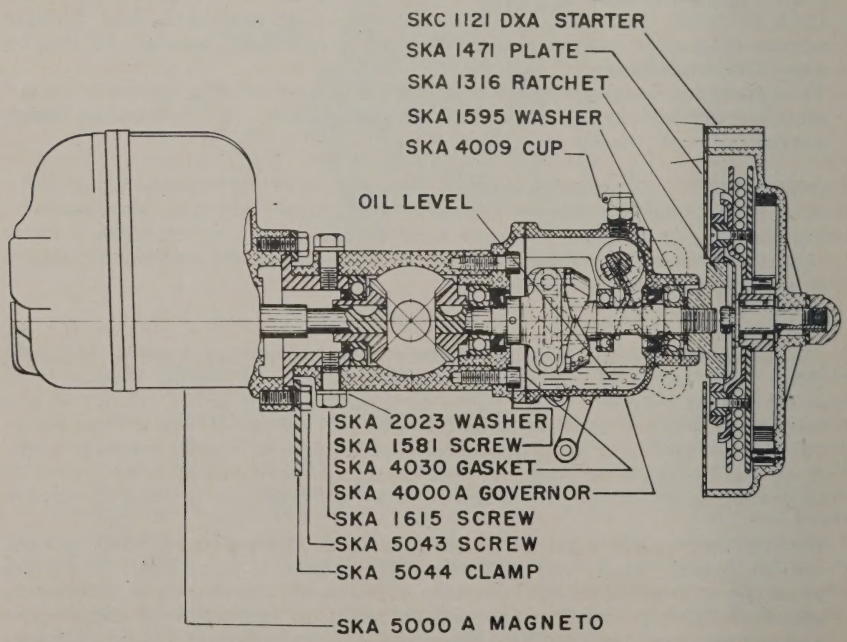


FIGURE 8

16. Remove crankshaft assembly. First remove lock wire (SKA-1754) from center main bearing lock screw (SKA-2293), located in starter side of crankcase, directly opposite carburetor.
Note plain washer (SKA-1554) assembled under lock screw head. With lock screw removed, center main bearing can be pressed out of crankcase.
CAUTION: To prevent distortion of crankshaft while pressing it out of crankcase, it is necessary to block crankcheeks apart by means of two short bolts with nuts, set between outer edge of counterweights, opposite crankpins. Back nuts off just enough to hold bolts in place but not so much as to spread crank cheeks. While pressing crankshaft out, set it in position where center cheek bears on reed lock screws.

17. Remove center main bearing from crankshaft. First loosen the four intake valve reeds MA-2562 and rockers MA-2563 which are secured to center main bearing by four hexagon head cap screws (SKA-1649). Then loosen the two center main bearing clamping screws (SKA-1798) until only two or three threads remain engaged, and separate the two halves by tapping screw heads. Then remove screws.

18. Miscellaneous crankcase fittings, such as grease fitting, carburetor studs, bearing housing studs, cylinder studs, crankcase drain plugs and starter support stud need not be removed unless they require replacement.

INSPECTION OF PARTS

Clean all parts thoroughly and inspect for wear and damage. Scrape carbon from cylinder combustion chambers and exhaust ports; also from exhaust manifold. Be careful about scratching or nicking joint faces, as deep scratches or nicks may result in leakage.

Clean outside of cylinders to remove dirt, dust, etc., especially from between cooling fins. Blow off loosened dust, dirt, etc., with compressed air and wipe cylinder bores with a clean rag.

Carefully clean carbon from piston. If a tool for cleaning ring grooves is not available, sharpen end of a piece of broken ring to a chisel edge. Avoid damaging or scratching sides of ring grooves.

Inspect both sets of connecting rod bearing rollers. If any rollers are found with damaged or pitted surfaces or if any rollers from a set have been lost, entire set of 28 rollers must be replaced with new ones; never renew individual rollers.

Ball bearings, worn to the extent of having appreciable play or shake, should be renewed.

Do not renew any oil seals except in the case of a seal which was known to be defective before engine was disassembled or which was damaged during disassembly.

Inspect fan for loose, broken or missing blades. Bent or damaged intake valve reeds must be replaced; reeds must lie perfectly flat on a smooth, plane surface. Inspect spark plug wires. If insulation is damaged, cracked or deteriorated, install new wires.

CLEANING CARBON FROM EXHAUST PORTS

At intervals not exceeding 100 hours of operation, also when engine performance becomes sluggish, remove muffler and inspect exhaust ports for excessive carbon accumulation. Engine cannot give maximum performance if exhaust ports are obstructed with carbon deposits.

In removing carbon from exhaust ports, care must be taken to prevent carbon from getting into cylinder. Therefore proceed as follows: Remove cylinder cover and exhaust manifold. Block engine up on one side so exhaust ports face downward at an angle. Also, as carbon is being scraped from each port, be sure piston is in position so lower edge of deflector crown is flush with lower edge of port holes. In this way, loosened carbon will fall out of exhaust port instead of becoming trapped in cylinder. Also scrape carbon from exhaust manifold.
In reassembling exhaust manifold, cylinder cover and muffler to engine, use new exhaust manifold gaskets (SKA-1920); also, be sure cylinder cover screws and muffler stud nuts are tightened securely.

REASSEMBLING ENGINE

1. Install center main bearing. Extraordinary care and accuracy are required in this procedure, especially in mounting and positioning intake valve reeds MA-2562 and rocker plates MA-2563. Intake valve reeds must lie perfectly flat against main bearing faces and reeds may not be nicked or bent. If engine is assembled with damaged or bent reeds, or if reeds are not accurately positioned to cover inlet passage openings, engine performance will not be normal and perhaps engine will not even start. Never attempt to make a reed lie flat by bending it with fingers; use a new reed.
   Proceed with assembly as follows: First fit the two bearing halves together and secure with clamp screws (SKA-1798). Then mount the four reeds and rocker plates with reed screws (SKA-1649). Do not tighten reed screws as yet. Carefully position the lower set of reeds so they register accurately over inlet passage openings, and center rocker plates over reeds. Lock lower reeds in this position by tightening reed screws securely.
   Position upper set of reeds over their inlet passage openings and tighten reed screws just snug. Then separate bearing halves to permit installing them on crankshaft.
   Apply engine oil to main bearing journal of crankshaft and set bearing halves in place in correct position so threaded hole for center main bearing lock screw will be toward starter side of crankcase when carburetor inlet opening is toward carburetor side of crankcase. Reinstall bearing clamp screws tighten securely.
   Next shift upper set of reeds as necessary so they match inlet passage openings, the same as was done in positioning lower reeds. Then tighten reed screws securely.
   Double check position of each reed, after reed screws have been tightened, by carefully lifting it and observing whether it covers edge of inlet passage opening all the way around; if it does not, loosen reed screw slightly, readjust reed and rocker plate position and retighten reed screws.
   Action of reed valves can be checked by alternately blowing and sucking on carburetor inlet passage opening of center main bearing. If reeds are seating satisfactorily, very little or no air can be sucked through bearing in this manner. If test shows excessive leakage of air past reeds, inspect each reed carefully and observe that it lies flat against main bearing face and that it is accurately positioned. Do not proceed with assembly until satisfactory seating of intake valve reeds has been attained.

2. Install crankshaft and center main bearing assembly. This requires use of special tool (Kiekhaefer Number SKA-2280-AT101) which permits applying pressure directly to center main bearing. This tool is designed to pilot the center main bearing so it will enter the crankcase bore squarely and will be correctly positioned in crankcase when pressing operation is completed.
   EMERGENCY: In an emergency, when special tool is not available, crankshaft and center main bearing assembly can be installed as follows: First block crank cheeks apart by means of two short bolts and nuts inserted between counterweights, directly opposite crankpins. Back nuts off just enough to hold screws in place, but not so much as to spread crank cheeks; this is

necessary to prevent distortion of crankshaft when pressure is applied. Start center main bearing into crankcase in correct position so threaded hole for center main bearing lock screw will register with lock screw hole in side of crankcase. Center main bearing must be pressed into case just far enough so carburetor inlet opening of bearing is centered in carburetor inlet opening of crankcase.

After crankshaft and center main bearing assembly is in place, install lock screw (SKA-2293) with plain washer (SKA-1554); tighten and secure with lock wire (SKA-1754).

3. Install rear bearing housing. If the two ball bearings (SKA-1642) bearing spacer (SKA-1523) and oil seal (SKA-1640) were removed from bearing housing, these parts should be reinstalled in housing first.
IMPORTANT: Correct alignment of accessory drive gear with governor drive gear and magneto drive gear will depend on fitting correct combination of .005" and .015" paper gaskets between crankcase and bearing housing flange. The correct combination was pre-determined in original assembly and correct gear alignment can be restored by re-installing bearing housing with new gaskets of same total thickness found in disassembly.
Set gaskets in place, start housing onto studs and press housing into crankcase. Install stud nuts (SKA-1555) with plain washers (SKA-1655); also temporarily install a bolt and nut in bottom hole of bearing housing. Tighten bolt and stud nuts securely, as bearing housing must be drawn tight before magneto drive gear backlash can be accurately checked (Step 5).

4. Install magneto. Magneto drive gear and accessory drive gear must mesh in correct relative position so points "break" each time front or rear crankpin reaches 23° before top center. This can be done as follows: Rotate crank shaft in direction which engine normally runs to position where front crankpin is at top dead center; then back it up 20° (one tooth on accessory drive gear). Next, remove magneto end cap, distributor rotor and rotor pin. Turn rotor shaft in direction which it normally runs to position where breaker points just start to separate. Without turning crankshaft or magneto rotor shaft from positions just set, hold magneto in its normal installed position (vertical) and insert drive end of magneto into crankcase. Install magneto support sleeve screws (SKA-1615) with plain washers (SKA-2023), but do not tighten securely until backlash adjustment has been made.

5. Adjust magneto drive gear backlash. Correct adjustment of magneto drive gear backlash can be determined by "feel". If magneto drive gear is too tightly or too loosely meshed with accessory drive gear, "grating" of gear teeth can be felt as rotor shaft is turned. A 5/32" round rod, inserted through hole in end of rotor shaft will permit turning rotor shaft by hand. (Bend rod as necessary to clear magneto parts.) By tapping magneto inward and outward to various positions, a point can be found where engagement of gear teeth is smoothest; magneto should be locked in this position by tightening the two support sleeve screws. In tightening these screws, draw them up alternately, each a little at a time, until both are tight; if first one is tightened fully and then the other, magneto will cock in its mounting, and drive gears will not mesh properly. After support sleeve screws have been securely tightened, insert a lock wire (SKA-1754) through holes in screw heads, draw the wire tight and secure by twisting the ends together. Distributor rotor and magneto end cap may be left off until engine has been completely assembled and ignition timing has been accurately adjusted according to timing marks on fan and fan housing.

6. Install governor. Governor drive gear must mesh with accessory drive gear with sufficient clearance so it has between .003" and .006" backlash. Backlash is adjusted in original assembly by fitting correct combination of .005" and .015" paper and .010" steel shims between governor flange (SKA-4015DA)

and crankcase. Correct backlash can be restored in reassembly by installing governor flange with new gaskets and shims of same total thickness found in disassembly. Be sure to assemble a paper gasket on each side of the steel shim. Secure governor flange to crankcase with two screws (SKA-1581) and lock washers (SKA-1947). Tighten screws securely. Next install governor housing assembly (SKC-4000A-1) on governor flange with four screws (SKA-4032) and lock washers (SKA-1551). Use a new gasket (SKA-4030) between housing and flange. When installing starter ratchet (SKA-1316) on end of governor shaft, be sure thrust washer (SKA-1595) is in place behind ratchet.

7. Install carburetor and choke assembly. Use a new gasket (A-427) between carburetor and crankcase. Mount carburetor (with choke assembly attached) on studs (SKA-1810) and secure with lock washers (SKA-1616) and stud nuts (SKA-1552). Tighten stud nuts securely. If rubber sealing ring (SKA-1159) is not in good condition, renew.

8. Install connecting rods. If old rollers were found in good condition and are to be used again, be careful to assemble each set of 28 rollers to the same rod from which they were removed when engine was disassembled. If one or more rollers from a set require replacement, entire set should be discarded and a complete new set of 28 rollers installed; never renew individual rollers.
To assemble connecting rods and bearings to crankshaft, proceed as follows: Lay out the set of 28 rollers which are to be assembled with first rod. Apply a coat of heavy grease to rod and rod cap bearing surfaces. Set 14 rollers into rod and 14 into cap. The grease will serve to hold rollers in place during assembly.

A tool for assembling rod and cap to crankshaft can easily be made from a piece of 1/4" round rod about 7" long, having a 1/4"-28 thread on one end. Insert tool, through hole in rod and thread it into cap. Rod and cap can then be easily set into position on crankshaft and held in place while one of the socket screws is installed and drawn down (but not tightened). Tool may then be safely removed and the other socket screw can be installed. Use new socket screws if available.
IMPORTANT: Bear in mind that rod and cap are originally machined as a unit and must always be assembled as originally paired, and with punch marks on same side as explained in Step 11, under "Disassembling Engine." Page 74. (For the sake of uniformity, it is recommended that rods always be installed with punch marks toward governor side of engine.)
Draw socket screws down alternately, each a little at a time until both are tight. These screws must be drawn very tight, therefore do not use a wrench with rounded corners; grind end of wrench off as necessary to remove worn portion. After screws are tight, apply engine oil to connecting rod bearing (between rod sides and crankcheeks), rotate crankshaft a few turns and check rod for binding or sticking. Rod must turn freely enough so that when it is held straight up and released, it will fall to either side by reason of its own weight. Also, upper end of rod should have at least .005" side shake. Sticking or binding are usually due to rod and cap becoming misaligned in tightening socket screws.

9. Install pistons. First apply engine oil to connecting rod upper bearings. Then install pistons with concave side of deflector crown toward carburetor side of engine. While tapping piston pin into piston, hold piston firmly so connecting rod will not become bent. After pin is in place, carefully clean lock ring grooves and install lock rings (SKA-1473). Caution: Be sure each lock ring seats firmly in groove; if it does not, discard and install a new one. A lock ring loosely installed will loosen further in service and may finally come out of piston; if this occurs, cylinder and piston may become seriously damaged.

10. Install cylinders. Lubricate cylinder walls and piston rings with engine oil. Also apply engine oil generously to rod lower ends and to crankshaft at center main bearing. This will provide initial lubrication when starting engine for first time following reassembly.
Install cylinder gaskets (SKA-1794). Rotate crankshaft so rear piston is at top dead center. Start rear cylinder onto piston and, after making sure ring gaps register on lock pin in ring grooves, carefully slide cylinder over piston and onto crankcase studs. Install stud nuts (SKA-1555) with plain washers (SKA-1655), but do not tighten securely as yet.
Install front cylinder in the same manner.
After both cylinders are installed slide exhaust manifold (SKB-1443D) onto studs; this will hold cylinders in alignment while cylinder stud nuts are being tightened. Draw cylinder base stud nuts down evenly, each a little at a time, until all are tight. Also install spark plugs at this time. If spark plug gaskets are not in good condition-renew. Start threads two or three turns with fingers to avoid cross-threading; then tighten with spark plug wrench (SKA-1689).

11. Install mounting foot. First remove the bolt and nut from bottom hole of rear bearing housing flange. Secure mounting foot with 2(SKA-1896)&1(SKA-1928)bolts, plain washers (SKA-1655) and nuts (SKA-1555). Tighten nuts securely.
12. Install fan housing. If shorting switch was removed from fan housing, secure it in place with locknut (SKA-9955). Then fasten fan housing to front end of crankcase with two cap screws (SKA-1659) and lockwashers (SKA-1660). Finally install the two governor-to-fan housing screws (SKA-1581). The shorting switch wire may now be fastened to magneto terminal with shorting wire nut (SKA-9937).
13. Install drive pulley. Set key (SKA-1558) into pulley keyway with beveled end toward engine. Start pulley onto shaft by tapping it lightly with a rawhide mallet. Insert crankshaft endscrew (SKA-1650) with endscrew washer (SKA-1326). Start endscrew two or three turns with fingers to be sure threads are not crossed. Then tighen securely with wrench.

14. Install fan assembly. Set key (SKA-1643) into fan hub keyway with beveled end toward engine. Start fan hub onto shaft by tapping lightly with rawhide mallet. Install the thick washer (SKA-1370) and fan hub nut (SKA-1651) on end of shaft. Tighten nut securely.

15. Install fuel tank. It is assumed that spark plug wires, fuel shut-off valve, etc. are in place and in good condition. Set fuel tank into position and connect fuel line to fuel shut-off valve (SKA-2575) and to carburetor connection (SKA-1638); first start threads a few turns with fingers to avoid cross threading. Then install the two fuel tank-to-cylinder screws (SKA-1622) and washers (SKA-1616); also the fuel tank-to-crankcase screw (SKA-1581) with plain washer (SKA-1551), and the fan housing to tank screw (SKA-1658) with washer (SKA-1616).
16. Install cylinder cover and muffler. Six new exhaust manifold gaskets (SKA-1920) are required, one pair on each side of exhaust manifold (SKB-1443D) and another pair between cylinder cover (SKB-1724) and muffler (SKC-2878). Fasten cylinder cover to fuel tank and to fan housing with 6(SKA-1636)&1(SKA-1662)screws. Mount muffler on studs (SKA-1903) and secure with washers (SKA-1551) and stud nuts (SKA-2118).

17. Install starter assembly. Starter assembly is fastened to starter support stud (SKA-1484) and to fan housing by three hexagon-head cap screws (SKA-1598) and plain washers (SKA-1616).

18. Time ignition. Readjust contact points so they have .012" to .015" maximum separation (with breaker lever riding on highest point of cam). Rotate

fan to position where 1/16" timing hole in fan rim is in alignment with timing hole in front edge of fan housing. With crankshaft in this position, front piston is in firing position and circuit breaker points should be just starting to separate. If points open too soon, spark is advanced too far; if points open too late, spark is retarded. To adjust spark advance, turn magneto in its mounting by means of lug on friction ring; shift lug toward fan housing to advance spark away from fan housing to retard spark. After correct timing adjustment has been attained, mount distributor pin and rotor on end of rotor shaft and reinstall magneto end cap. Use a new gasket if old one is not in good condition.

Assuming spark plug wire shields SKA-12029A were not removed from fuel tank, insert other end of shields into magneto end cap shield and fasten in place with bushing nuts. Then push spark plug wires into end cap terminal sockets, upper socket is for front spark plug wire. After spark plug wires have been inserted into their respective terminal sockets, install magneto end cap shield cover (SKA-9891), magneto cover (SKA-1496) and spark plug cover.

19. Connect controls. Mount spring (SKA-1627) on threaded end of choke rod (SKA-1746A), insert end of rod through hole in fan housing and install choke knob (A-1077). Connect other end of rod to choke lever and secure with cotter pin (SKA-1571).

Connect throttle control rod to governor throttle lever and to carburetor throttle lever. Secure socket fittings to levers with lock washers (SKA-1785) and nuts (SKA-1573).

SERVICING IGNITION SYSTEM

The ignition system is carefully engineered to insure quick, easy starting and maximum dependability, without the necessity of frequent adjustment and service. Field adjustment is rarely necessary, and should not be attempted, except in strict accordance with instructions.

Failure to start, hard starting or erratic performance can result from a number of causes aside from magneto itself. Therefore, before assuming that magneto is at fault, first make a systematic check to eliminate other possible causes of trouble. (The more common difficulties and suggested remedies are listed in "Troubles Encountered with Engine " Page 4. If the trouble is then definitely traced to the ignition system, make the following checks to determine the exact nature of the trouble.

1. Inspect spark plugs. Defective spark plugs may cause missing, hard starting and lack of normal power. Spark plugs must be clean and gap between electrodes adjusted to .025". If plugs are found with cracked, broken or blistered insulation, or with badly oxidized electrodes, replace with new plugs. Proceed with Step 2.

2. Test spark at spark plugs. Remove spark plug cover, take off the spark plug terminal nuts, leaving high tension wires connected. Start engine, warm it up thoroughly and set choke in fully-opened position. With engine running, hold high tension wires 1/16" away from spark plug terminals. If this causes engine to miss, indicating a weak or intermittent spark, proceed with Step 3.

3. Test spark at magneto. Remove magneto cover plate and magneto end cap shield cover. Pull high tension wires out of their sockets in the cover and insert a short, stiff wire in each socket. Bend end of each wire to within 1/4" of some part of engine. Operate starter at normal "cranking" speed and observe spark between each wire and engine. A "hot" bright spark indicates that magneto is functioning normally and that the trouble is somewhere outside of magneto. A weak thin spark (or no spark at all, as in the case of an engine that will not start) indicates that the trouble is within the magneto. In either case, proceed with Step 4.

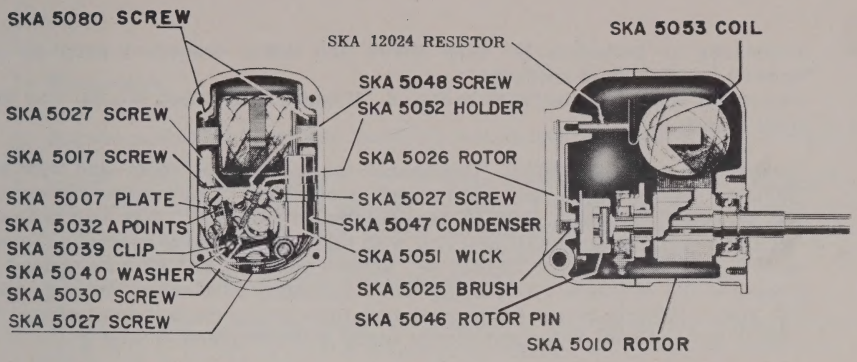


FIGURE 9

4. Inspect high tension wires and terminals. Carefully inspect for cracked or damaged insulation, particularly at grommets, where wires pass through fuel tank casting. The insulation may have become deteriorated or cracked, allowing high tension current to "leak" to metal parts with which wires come in contact. In this case, install new high tension wires before proceeding to Step 5.

5. Remove magneto end cap (SKA-5020). This requires removing the four screws (SKA-5022), lock washers (SKA-5024) and plain washers (SKA-5023). Carefully clean joint face of magneto and cover so when magneto is again assembled, cover will form a dust and moisture tight seal. If gasket is not in good condition, replace with a new one. In final assembly (but not before) gasket should be coated with gasket-sealing varnish.
   Check magneto rotor shaft for excessive looseness in breaker plate bushing. If bushing is worn to the extent that shaft has noticeable looseness, install new breaker plate with bushing already installed (SKA-5007). This requires removing condenser (SKA-5047), felt wick (SKA-5051) and circuit breaker points (SKA-5032). Breaker plate is secured to magneto frame by four screws--(SKA-5017). Bushing is prelubricated and does not require periodic lubrication after magneto is placed in service.
   If felt wick (SKA-5051) is dry or hard, it should be replaced with a new impregnated wick.
   Wipe inside of end cap with a clean, dry cloth to remove any possible accumulation of carbon, dust, oil film or moisture. Clean contact bar on distributor rotor (SKA-5026) and high tension wire terminals in end cap with fine sandpaper. If coil lead brush (SKA-5025) is badly worn, replace with a new one. Do not attempt to remove magnetic rotor (SKA-5010) from frame; this should be done only by a factory-trained service man.
   Before reassembling magneto, proceed through Step 6.

6. Inspect circuit breaker points. Oxidized or slightly pitted points may be refaced; badly pitted or pyramided points should be renewed.
   Whenever points have been refaced or a new set of points have been installed point gap should be reset and ignition timing reset as explained under "Servicing Ignition System" Page 16.
   Reassemble magneto and repeat spark test described in Step 3. If magneto still shows a weak spark or no spark at all, again remove end cap and gasket and proceed to Step 7.

7. Install new condenser. Condenser is secured by a mounting screw (SKA-5027) and lead wire terminal screw (SKA-5027) on contact point plate. When

condenser is installed, be sure wires are again connected properly and screws are tightened securely.
Again test spark as described in Step 3. If spark is still not satisfactory proceed to Step 8.

8. Install new coil (SKA-5053). Disconnect the three wires from lead wire terminal on contact point plate and remove condenser. Also remove the two coil set screws (SKA-5080). Coil is then free to be removed. Note that coil core has two indentations; install new coil with these indentations upward to receive ends of coil set screws. Tighten set screws securely and fill screw head recesses in top of frame with sealing wax. Reinstall condenser. Be sure wires are again properly connected to lead wire terminal on contact point plate. Reinstall end cap and gasket and repeat spark test described in Step 3.

9. If magneto requires general overhaul or replacement of parts other than described in the foregoing paragraphs, it is recommended that complete magneto be removed from engine (See Step 13, under "Disassembling Engine," Page 9) and sent to the magneto manufacturer for the necessary repairs.

SERVICING STARTER ASSEMBLY

To Disassemble:

1. Free starter assembly from engine by removing the three hexagon head cap screws (SKA-1598) and plain washers (SKA-1616) which secure starter housing (SKC-1121DXA) to fan housing (SKD-9941) and to starter support stud (SKA-1484). Starter friction plate (SKA-1471) is then also free.

2. Remove starter pawl assemblies (SKA-2925A). With friction plate removed, pawl assemblies can be lifted off of pivot studs.

3. CAUTION: In completing the following disassembly operations, bear in mind that starter spring (A-1049) is coiled in housing with considerable tension and, unless these instructions are carefully followed, there is danger of injury due to the force with which spring uncoils when released suddenly.

4. Remove starter cable handle (MB-2078) and handle bushing (MA-2190). In assembly, starter sheave is wound counter-clockwise two or three turns to give starter spring the necessary initial tension. Therefore, when handle is removed, hold sheave and allow it to unwind slowly.

5. Remove sheave shaft (SKA-1950A). After removing lock nut (SKA-1597), lock washers (SKA-1882) and outer thrust washer (SKA-1595), sheave shaft can be tapped out of starter housing with a small hammer. While doing so, hold housing and sheave together firmly; this precaution will prevent starter spring from disengaging one or both of the spring anchor pins.

6. Separate sheave from housing. Carefully lift sheave--just enough to permit inserting thumb under sheave, and hold starter spring in place. While pressing spring into housing, lift sheave free of spring. Spring may then be safely uncoiled by lifting out one coil at a time, always holding the remaining coils firmly in place with thumb.
Note inner thrust washer (SKA-1595) assembled in starter housing recess, between housing and sheave.

7. Remove starter cable from sheave. This requires removing the four cable retaining screws (SKA-1678). These screws should be discarded because new ones must be used in reassembly. Starter cable can now be pulled out through hole in sheave flange.

To Reassemble:

1. Inspect parts and if any are found worn or damaged, replace with new parts.

2. Install starter cable. Insert end of cable through hole in sheave flange, engage cable anchor block in notches provided for that purpose and wind cable on sheave one full turn. Then install the four cable retaining screws. Tighten screws securely and wind remainder of cable around outside of screws. Shear off projecting ends of cable retaining screws with a sharp chisel.

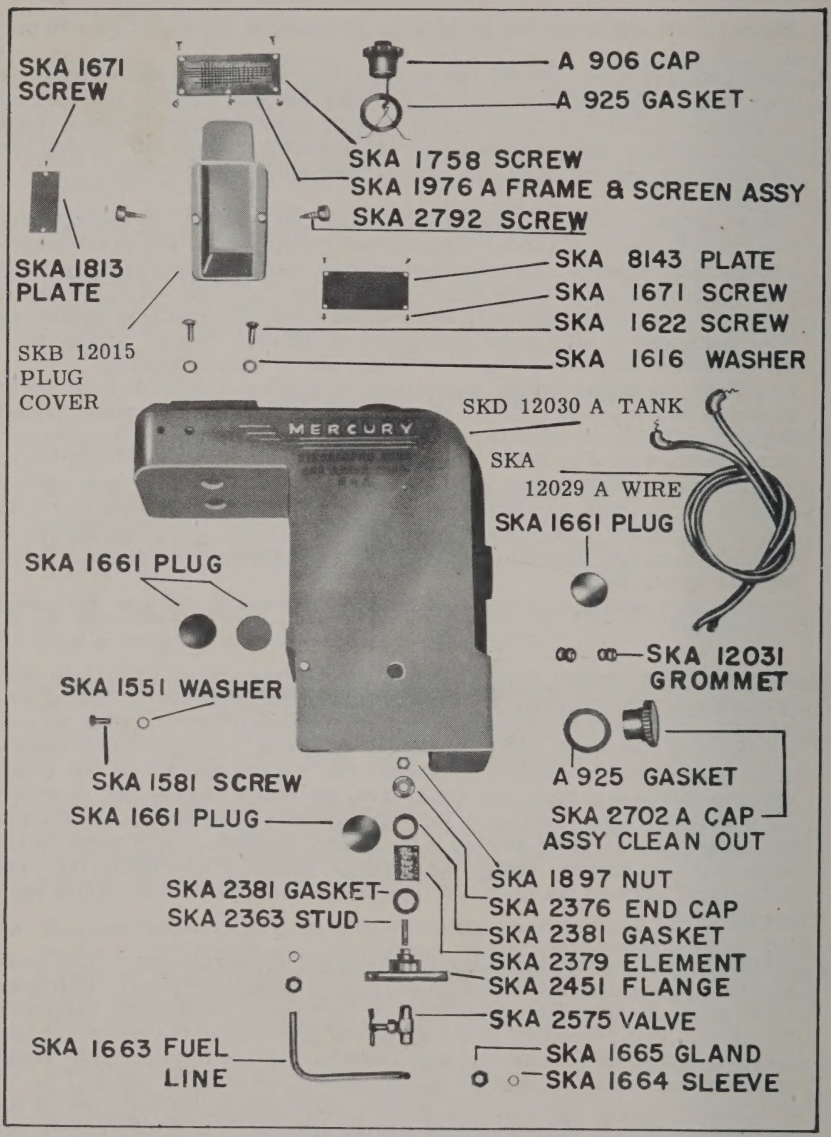
3. Install starter spring (A-1049). First insert a snug fitting rod through sheave shaft hole in center of starter housing and clamp rod in vise so inner side of housing faces upward. To keep housing from turning while coiling spring, insert a 1/4" x 3" long screw (part number SKA-1815 will serve) through one of the mounting screw holes in housing and allow screw to bear against vise. Note that hooks at each end of spring are of different length. Spring must be installed with long hook engaged on anchor pin in starter housing.
   CAUTION: In coiling spring, care must be taken to keep coiled portion fully seated in housing. Hold coils constantly in place with one hand while inserting the next coil with the other hand. If this precaution is relaxed for only an instant, spring may snap out of housing and uncoil with sufficient force to cause severe injury. This danger exists until sheave and shaft have been installed.
   Engage spring hook on anchor pin in housing, with looped-over end toward center of housing. Coil the spring counter-clockwise. After spring has been completely coiled, carefully apply a generous amount of grease, forcing it between spring coils.
   Housing, with spring in place, may now be removed from vise. Take out the rod and bolt.

4. Install starter sheave. First set inner thrust washer (SKA-1595) into recess in center of starter housing. Then carefully lift inner end of spring out of housing, just enough to permit engaging spring anchor pin of starter sheave in spring hook. (Bear in mind the danger of spring snapping out of housing.) When spring hook is engaged on anchor pin, sheave may be set into place in housing. Set sheave shaft key (SKA-1911) into shaft keyway and, while holding sheave so center bearing is in alignment with shaft hole in starter housing, insert sheave shaft and tap it into place. Be sure slot in pawl retainer engages pin on sheave. Install outer thrust washer (SKA-1595), lock washer (SKA-1882) and lock nut (SKA-1597) on end of sheave shaft and tighten nut securely.

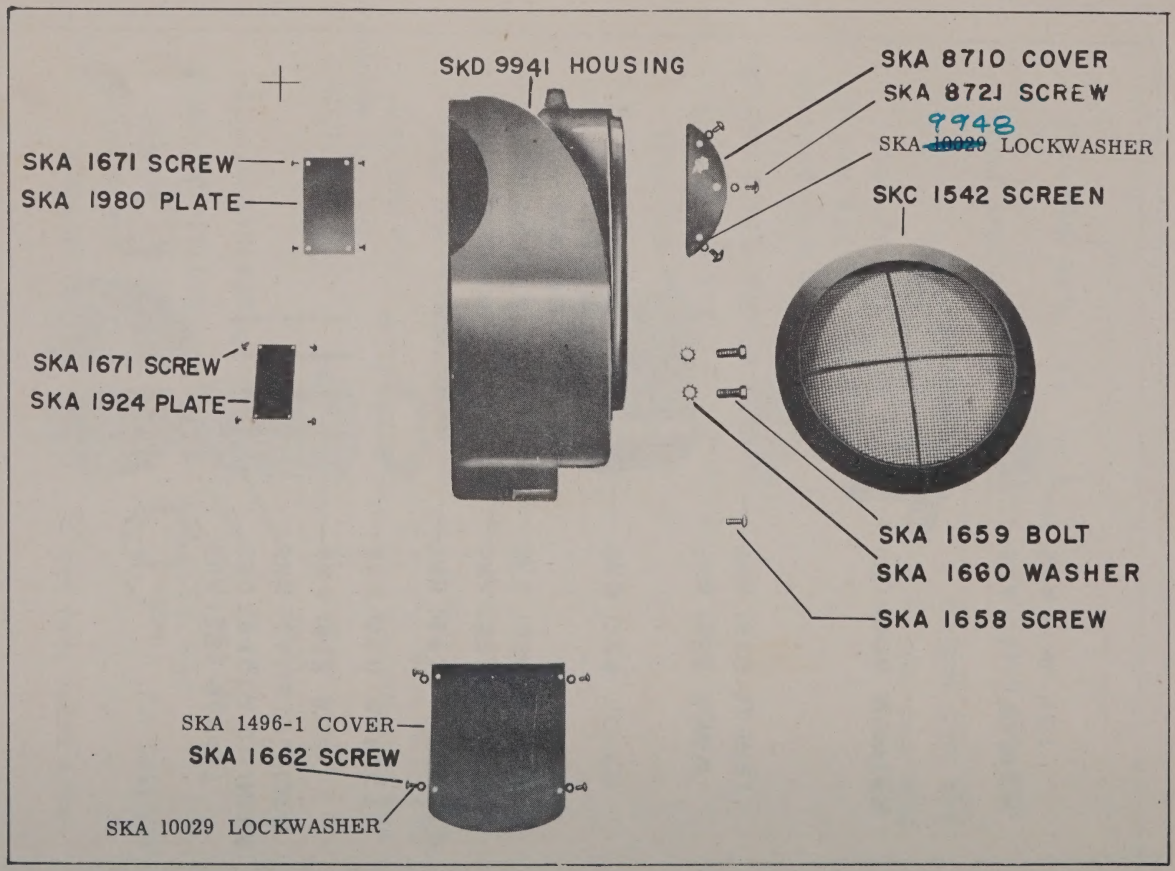
5. Install starter handle and bushing. Grasp end of starter cable, wind starter sheave counter-clockwise at least two full turns and insert end of cable through cable guide. To keep cable from drawing back out of cable guide, temporarily tie a knot. This procedure winds spring to give sheave the necessary initial tension. Insert end of cable through cable handle and through handle bushing and tie a double knot in extreme end of cable to secure it in handle.
   Pull starter cable to test spring tension; if tension is not sufficient to draw handle back against cable guide, it will be necessary to again remove cable handle and increase initial spring tension by winding sheave an extra turn.

6. Install starter pawl assemblies. Mount starter pawls on pivot studs with magnets facing away from sheave flange and with hooked ends of pawls toward pawl retainer. Friction plate (SKA-1471) is assembled against magnets.

7. Reinstall starter assembly on engine with cap screws (SKA-1598) and plain washers (SKA-1616). Tighten screws securely.



FUEL TANK GROUP.


SKD 9941 HOUSING
SKA 8710 COVER
SKA 8721 SCREW
9948
SKA 10029 LOCKWASHER
SKC 1542 SCREEN
SKA 1671 SCREW
SKA 1980 PLATE
SKA 1671 SCREW
SKA 1924 PLATE
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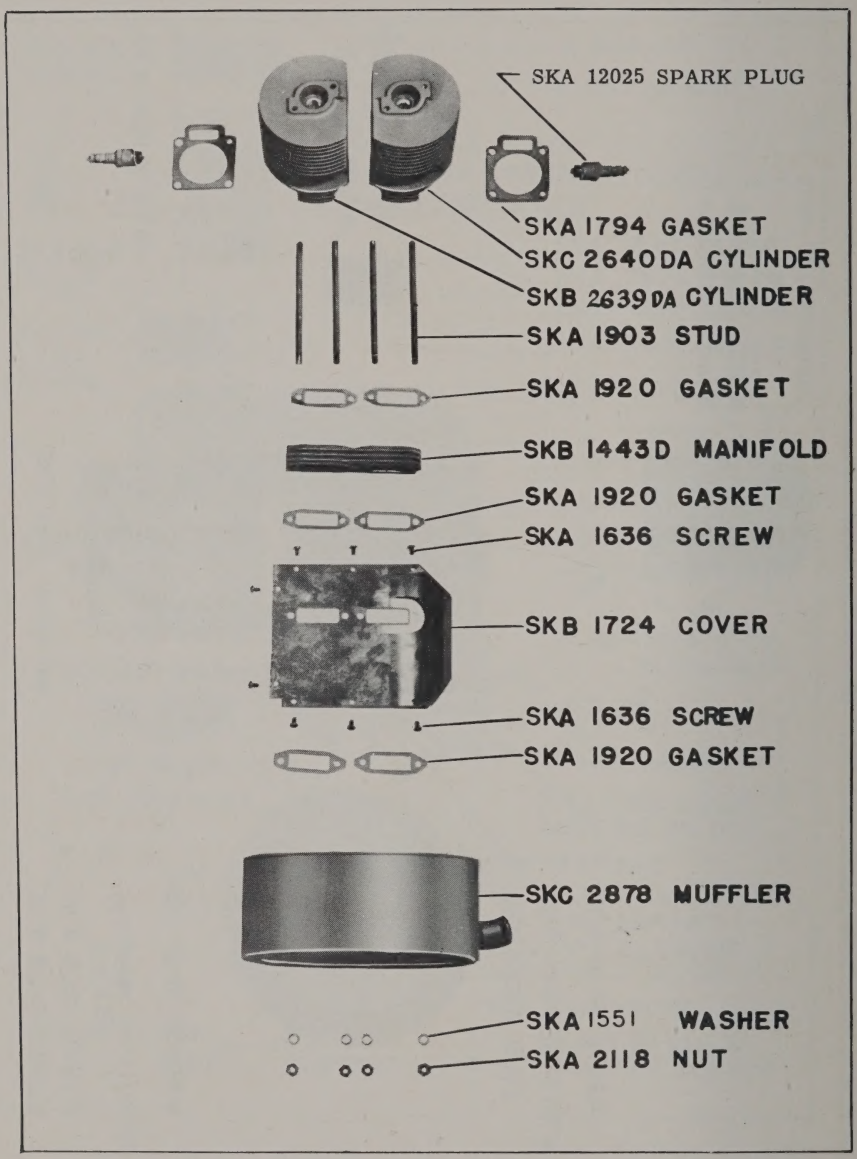
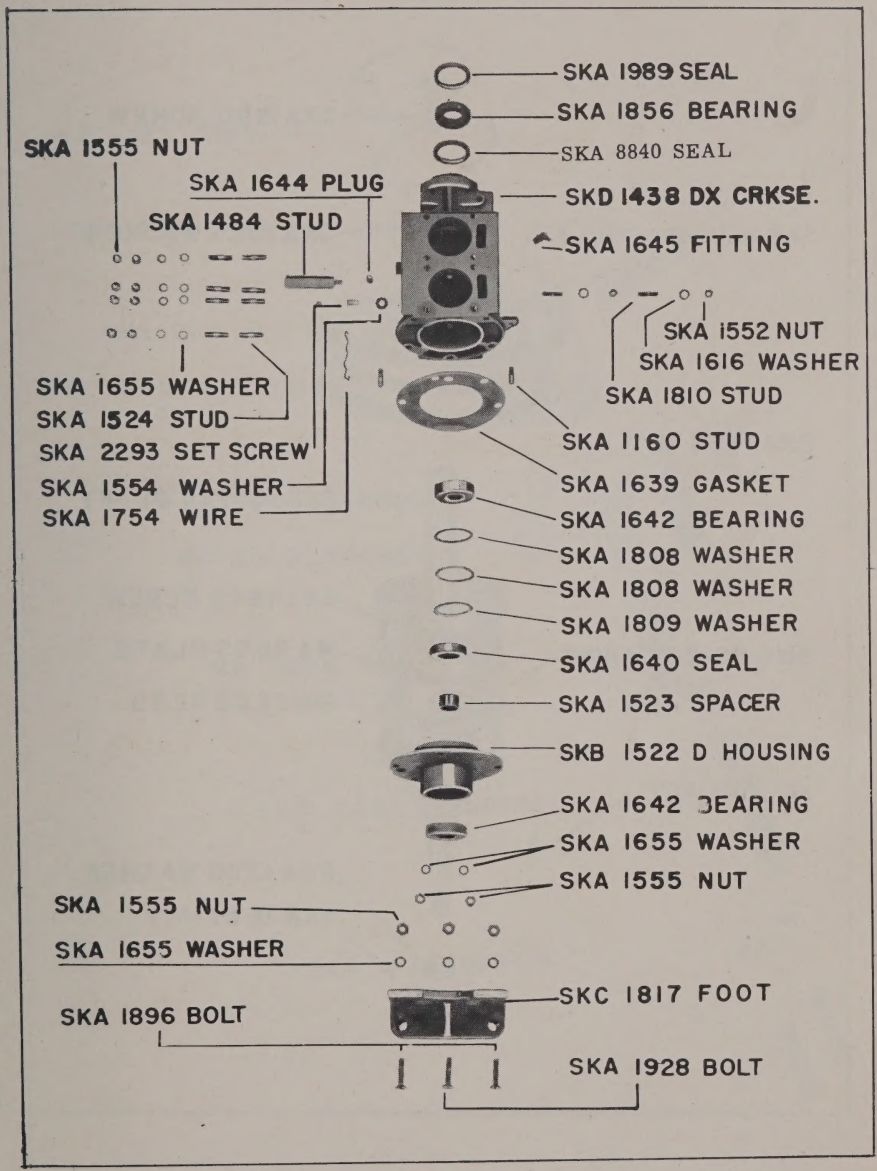
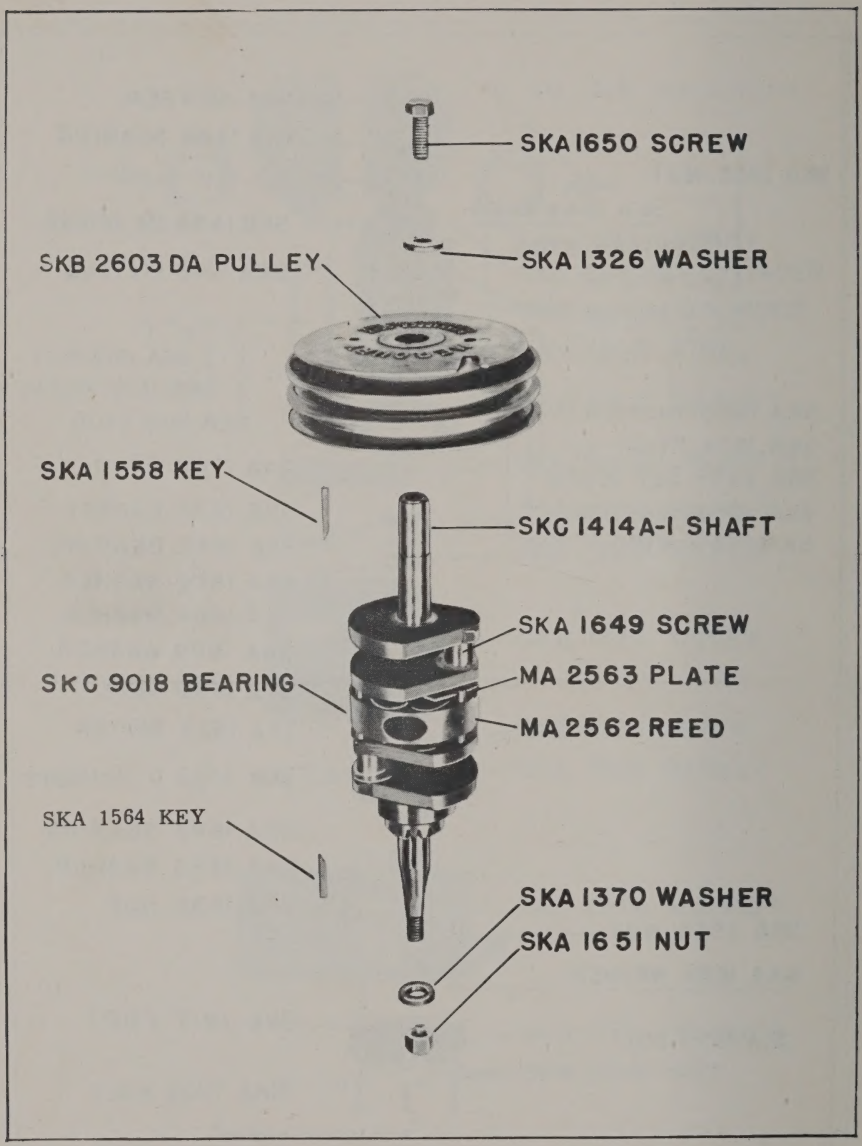
SKA 1662 SCREW
SKA 10029 LOCKWASHER



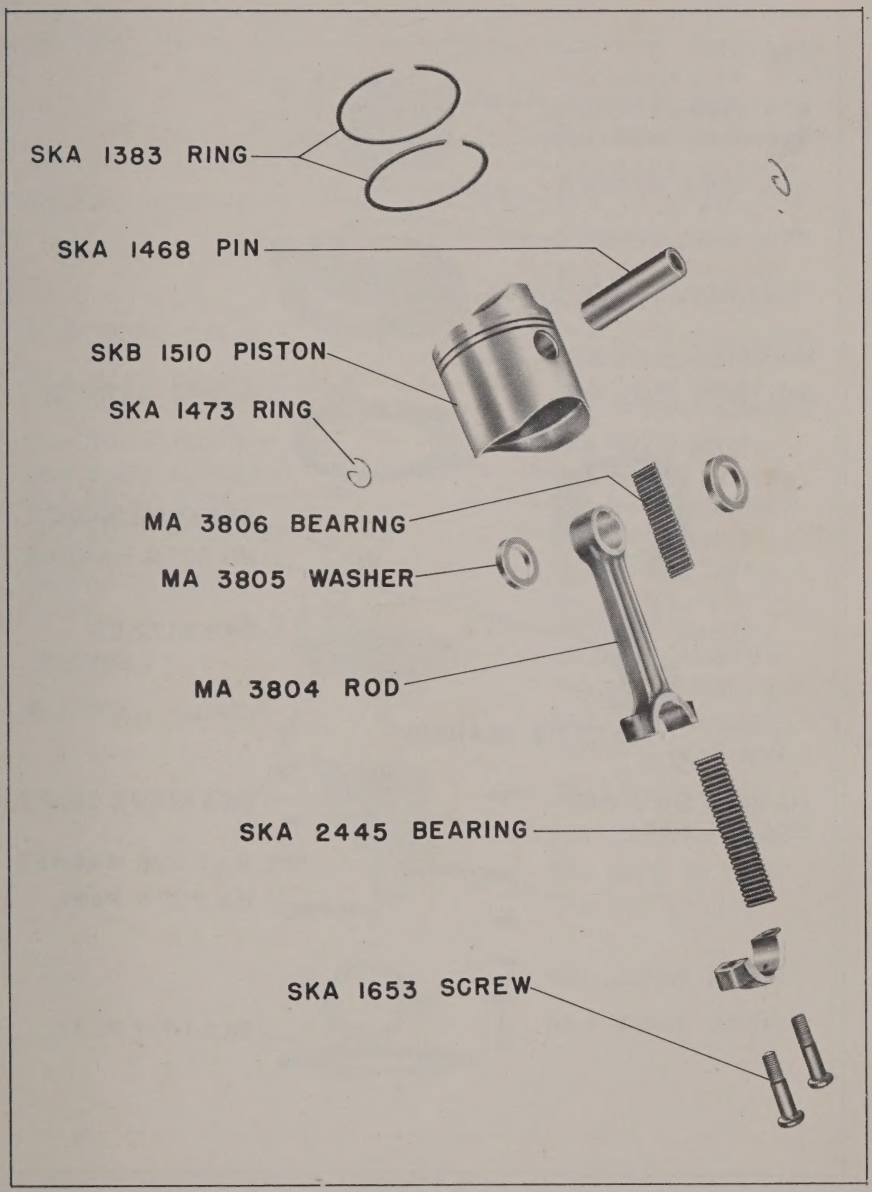
CYLINDER, AND MUFFLER GROUP.



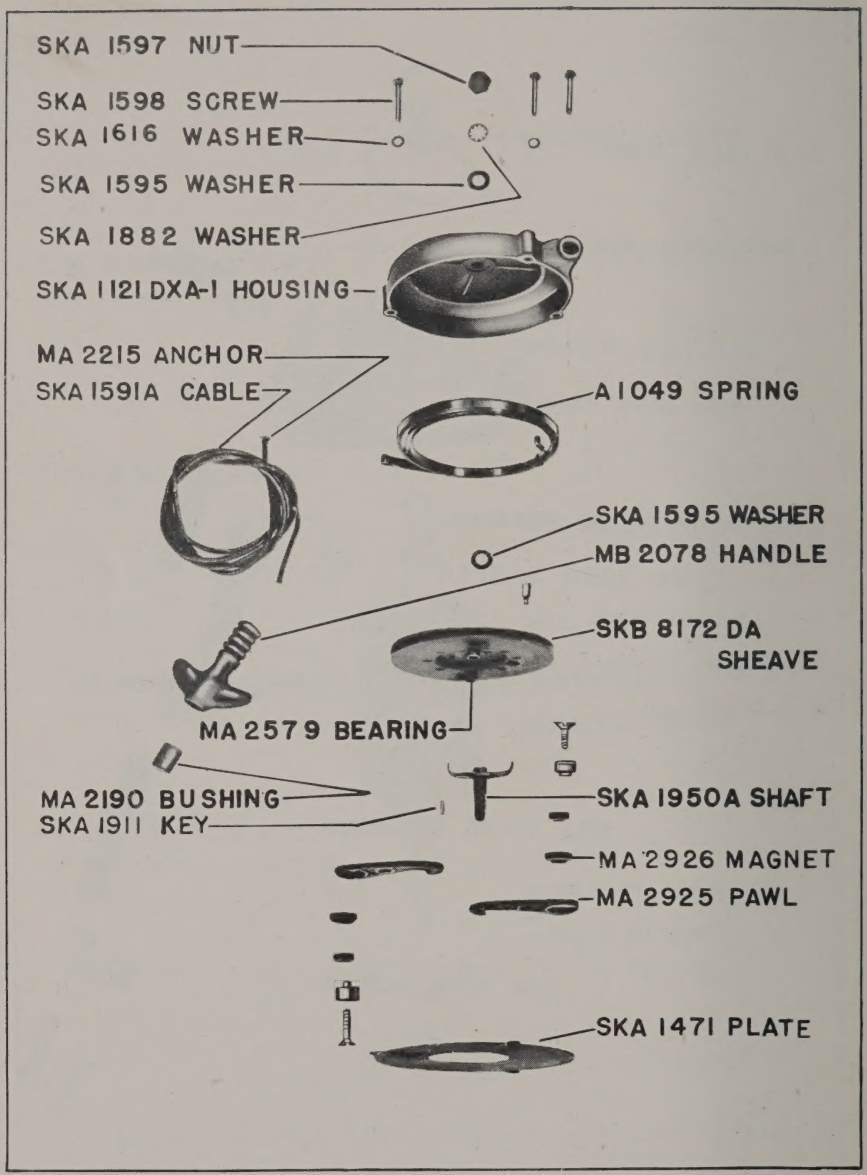
CRANKCASE AND BEARING HOUSING GROUP.



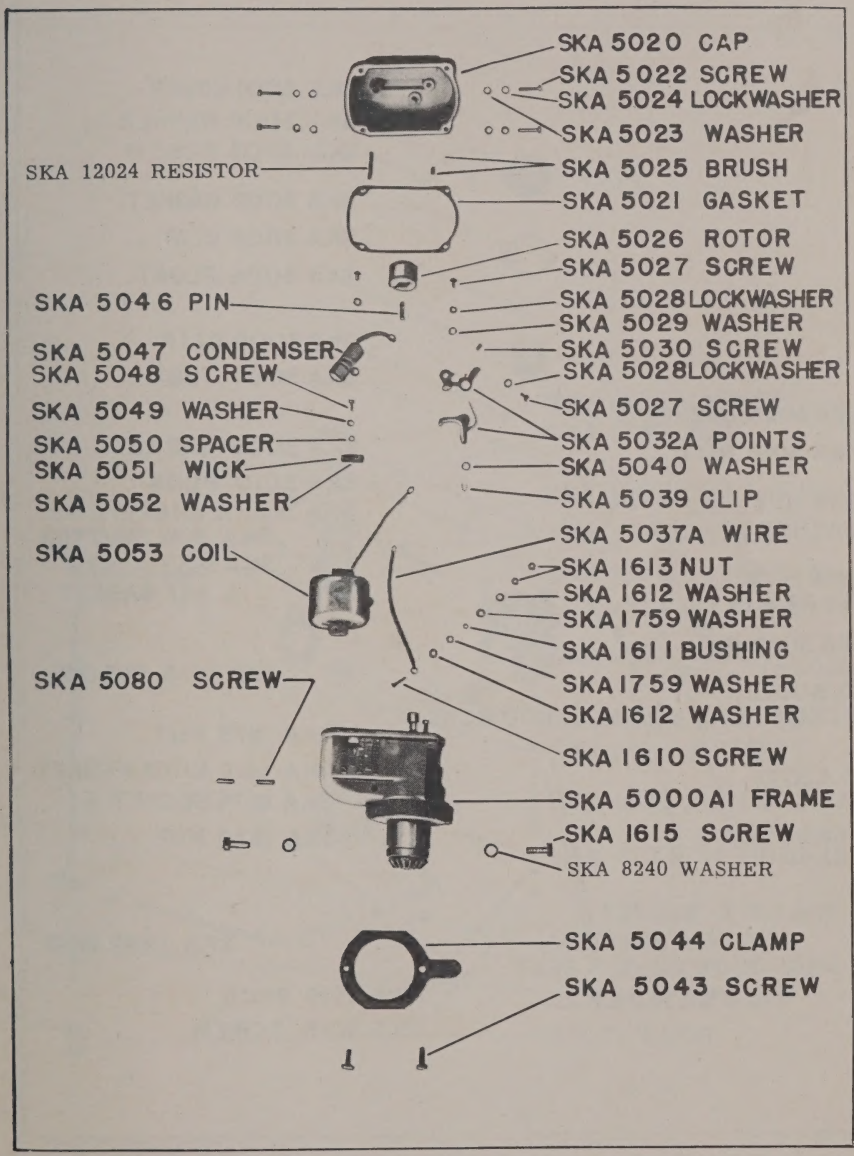
CRANKSHAFT GROUP.

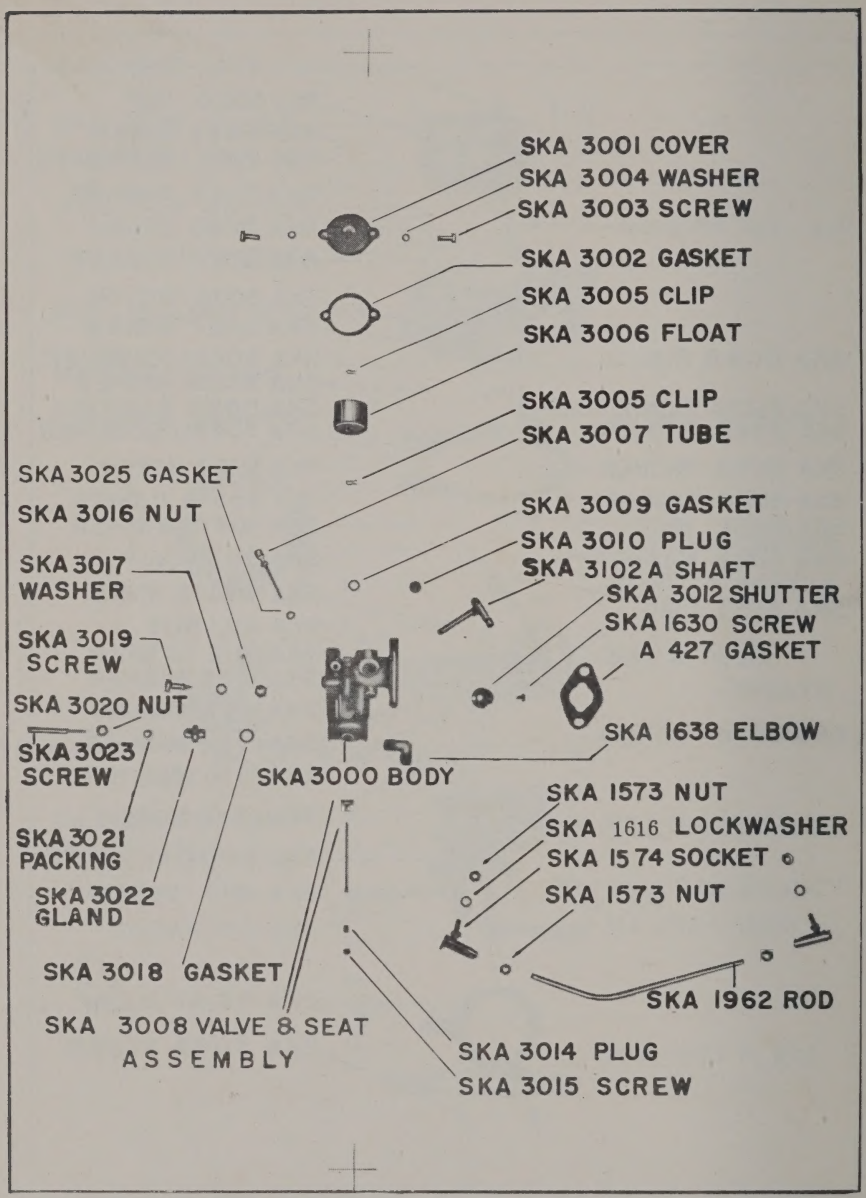


CONNECTING ROD AND PISTON GROUP.

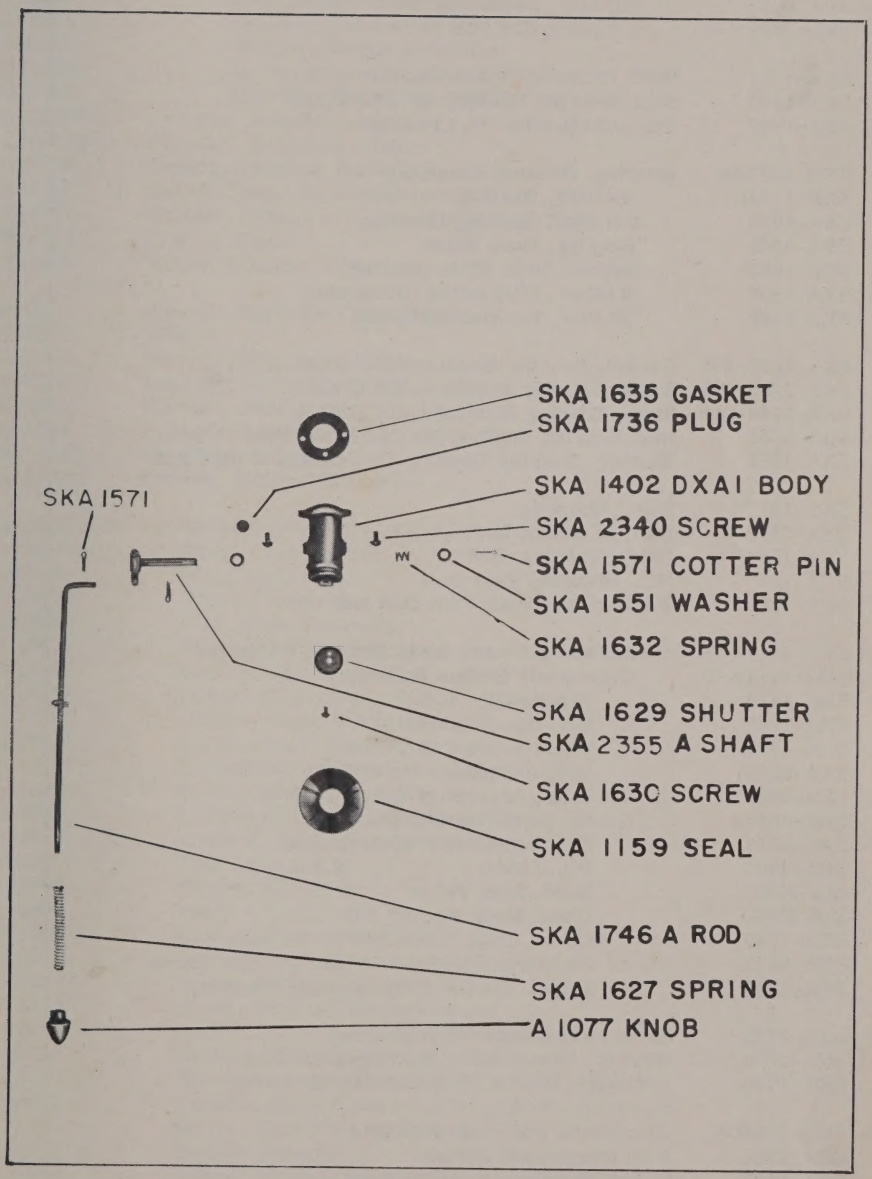


STARTING GROUP.


SKA 5020 CAP
SKA 5022 SCREW
SKA 5024 LOCKWASHER
SKA 5023 WASHER
SKA 12024 RESISTOR
SKA 5025 BRUSH
SKA 5021 GASKET
SKA 5026 ROTOR
SKA 5027 SCREW
SKA 5046 PIN
SKA 5028 LOCKWASHER
SKA 5029 WASHER
SKA 5047 CONDENSER
SKA 5030 SCREW
SKA 5048 SCREW
SKA 5028 LOCKWASHER
SKA 5049 WASHER
SKA 5027 SCREW
SKA 5050 SPACER
SKA 5032A POINTS
SKA 5051 WICK
SKA 5040 WASHER
SKA 5052 WASHER
SKA 5039 CLIP
SKA 5053 COIL
SKA 5037A WIRE
SKA 1613 NUT
SKA 1612 WASHER
SKA 1759 WASHER
SKA 1611 BUSHING
SKA 5080 SCREW
SKA 1759 WASHER
SKA 1612 WASHER
SKA 1610 SCREW
SKA 5000A1 FRAME
SKA 1615 SCREW
SKA 8240 WASHER
SKA 5044 CLAMP
SKA 5043 SCREW



CARBURETOR GROUP.


SKA 1635 GASKET
SKA 1736 PLUG
SKA 1571
SKA 1402 DXA1 BODY
SKA 2340 SCREW
SKA 1571 COTTER PIN
SKA 1551 WASHER
SKA 1632 SPRING
SKA 1629 SHUTTER
SKA 2355 A SHAFT
SKA 1630 SCREW
SKA 1159 SEAL
SKA 1746 A ROD
SKA 1627 SPRING
A 1077 KNOB

CHOKE GROUP.

MODEL KB6F MOTOR PARTS LIST

PART NO.	DESCRIPTION	QUAN.
SKD-1438DXA	Crankcase Assembly	1
SKD-1438DX	Crankcase	1
SKA-1856	Bearing, Fan Hub	1
SKA-1645	Fitting, Grease	1
SKA-1644	Plug, Oil Drain	2
SKA-8840	Oil Seal, Accessory Drive Gear	1
SKA-1989	Oil Seal, Fan Hub	1
SKA-1524	Stud, Cylinder To Crankcase	8
SKA-1160	Stud, Bearing Housing To Crankcase	2
SKA-1810	Stud, Carburetor To Crankcase	2
SKB-1522DA	Bearing, Housing Assembly	1
SKB-1522D	Housing, Bearing	1
SKA-1640	Oil Seal, Bearing Housing	1
SKA-1642	Bearing, Rear Main	2
SKA-1523	Spacer, Rear Main Bearing	1
SKA-1808	Washer, Preloading (Neoprone)	1
SKA-1809	Washer, Preloading (Steel)	2
SKA-1639-005	Gasket, Bearing Housing (.005 Paper)	1
SKA-2369-005	Shim, Bearing Housing (.005 Brass)	1
SKA-2369-010	Shim, Bearing Housing (.010 Brass)	1
SKA-1555	Nut, Bearing Housing To Crankcase Stud	2
SKA-1655	Washer, Bearing Housing To Crankcase Stud Nut	2
SKC-1817	Foot, Mounting	1
SKA-1896	Bolt, Mounting Foot	2
SKA-1928	Bolt, Mounting Foot	1
SKA-1555	Nut, Mounting Foot Bolt	3
SKA-1655	Washer, Mounting Foot Bolt Nut	3
SKC-1414A	Crankshaft & Center Main Bearing Assembly	1
SKC-1414A-1	Crankshaft & Gear Assembly	1
SKC-1414	Crankshaft N.S.S.	1
SKA-1642	Bearing, Front Main	1
SKA-1439	Gear, Accessory Drive	1
SKA-1564	Key, Accessory Drive Gear	1
SKA-2043	Shim, Accessory Drive Gear	1
SKC-9018A	Center Main Bearing Assembly	1
SKC-9018	Bearing, Center Main N.S.S.	1
SKA-4003	Pin, Dowel N.S.S.	2
MA-2562	Reed, Inlet Valve	4
MA-2563	Plate, Reed Rocker	4
SKA-1649	Screw, Inlet Valve Reed Attaching	4
SKA-5023	Washer, Inlet Valve Reed Attaching Screw	4
SKA-1798	Screw, Center Main Bearing Clamping	2
SKA-2293	Set Screw, Center Main Bearing	1
SKA-1554	Washer, Center Main Bearing Set Screw	1
SKA-1754	Lockwire, Center Main Bearing Set Screw	1
SKB-2603DA	Crankshaft Pulley Assembly	1
SKA-1558	Key, Crankshaft Pulley	1
SKA-1650	Screw, Crankshaft Pulley End	1
SKA-1326	Washer, Crankshaft Pulley End Screw	1
SKB-1510A	Piston & Connecting Rod Assembly	2
SKB-1510A-1	Piston Assembly	2
SKB-1510	Piston N.S.S.	2

PART NO.	DESCRIPTION	QUAN.
SKA-1468	Pin, Piston N.S.S.	2
SKA-1383	Ring, Piston	4
SKA-1473	Ring, Piston Pin Lock	4
MA-3804A	Connecting Rod Assembly	2
MA-3804	Connecting Rod & Cap N.S.S.	2
SKA-2445	Bearing, Connecting Rod Roller	56
MA-3805	Washer, Needle Retaining	4
SKA-1653	Screw, Connecting Rod & Cap	4
MA-3806	Bearing, Piston Pin	44
SKC-2639DA	Cylinder Assembly, Front	1
SKC-2640DA	Cylinder Assembly, Rear	1
SKA-1794	Gasket, Cylinder Base	2
SKA-1555	Nut, Cylinder To Crankcase Stud	8
SKA-1655	Washer, Cylinder To Crankcase Stud Nut	8
SKB-1724	Cowl, Cylinder	1
SKA-1636	Screw, Cylinder Cowl	8
A-7049	Washer, Cylinder Cowl Screw	7
SKC-2878	Muffler	1
SKA-1903	Stud, Muffler To Cylinder	4
SKA-2118	Nut, Muffler To Cylinder Stud	4
SKA-1551	Washer, Muffler To Cylinder Stud	4
SKA-1754	Lockwire, Muffler To Cylinder Stud	1
SKB-1443D	Manifold, Exhaust	1
SKA-1920	Gasket, Exhaust Manifold	6
SKB-3000A(b)	Carburetor Assembly (Tillotson AJ13B)	1
SKA-3000 (b)	Body, Carburetor N.S.S.	1
SKA-3010	Plug, Body Welch	1
SKA-3006	Float, Carburetor	1
SKA-3005	Clip, Float Retaining	2
SKA-3014	Plug, Float Bowl Drain	1
SKA-3024	Gasket, Float Bowl Drain Plug	1
SKA-3001	Cover, Float Bowl	1
SKA-3002	Gasket, Float Bowl Cover	1
SKA-3003	Screw, Float Bowl Cover	2
SKA-3004	Lockwasher, Float Bowl Cover Screw	2
SKA-3019	Screw, Idle Adjustment	1
SKA-3017	Lockwasher, Idle Adjustment Screw	1
SKA-3016	Locknut, Idle Adjustment Screw	1
SKA-3007	Tube, Idle	1
SKA-3025	Gasket, Idle Tube	1
SKA-3008	Valve & Seat, Inlet	1
SKA-3009	Gasket, Inlet Valve Seat	1
SKA-3015	Screw, Inlet Valve Channel Plug	1
SKA-3023	Screw, Main Adjustment	1
SKA-3022	Gland, Main Adjustment Screw	1
SKA-3018	Gasket, Main Adjustment Screw Gland	1
SKA-3021	Packing, Main Adjustment Screw	1
SKA-3020	Nut, Main Adjustment Screw Packing	1
SKA-3102A	Throttle Shaft, Lever & Clamp Screw Assembly	1
SKA-1634	Screw, Throttle Lever Clamp	1
SKA-3012	Shutter, Throttle	1
SKA-1630	Screw, Throttle Shutter	1
SKA-2358	Lockwasher, Throttle Shutter Screw	1
SKA-1644	Plug, Body Inlet Hole	1
A-427	Gasket, Carburetor Mounting	1
SKA-1552	Nut, Carburetor Mounting Stud	2
SKA-1616	Washer, Mounting Stud Nut	2
SKA-3026A	Gasket & Packing Set, Carburetor	

PART NO.	DESCRIPTION	QUAN.
SKA-1962	Rod, Throttle	1
SKA-1574	Joint, Ball & Socket	2
SKA-1573	Nut, Ball & Socket Joint	4
SKA-1616	Washer, Ball & Socket Joint Nut	2
SKA-2356A	Choke Assembly, Complete	1
SKA-1402DXA-1	Choke Body Assembly	1
SKA-1402DX	Body, Choke	1
SKA-1631	Pin, Choke Shutter Stop	1
SKA-1736	Plug, Choke Body Welch	1
SKA-2355A	Shaft & Lever Assembly	1
SKA-1628	Shaft, Choke	1
SKA-1633	Lever, Choke Operating	1
SKA-1634	Screw, Choke Operating Lever Clamp	1
SKA-1812	Pin, Choke Shaft Groove	1
SKA-1629	Shutter, Choke	1
SKA-1630	Screw, Choke Shutter	1
SKA-2358	Washer, Choke Shutter Screw Lock	1
SKA-1632	Spring, Choke Shaft Tension	1
SKA-1551	Washer, Choke Shaft Tension	2
SKA-1571	Cotter Pin, Choke Shutter	1
SKA-1635	Gasket, Choke Body	1
SKA-1159	Ring, Choke Body Sealing	1
SKA-2340	Screw, Choke Body Mounting	2
SKA-1754	Lockwire, Choke Body Mounting Screw	1
SKA-1746A	Choke Rod Assembly	1
SKA-1746	Rod, Choke	1
SKA-1761	Washer, Choke Rod Stop	1
A-1077	Knob, Choke Rod	1
SKA-1627	Spring, Choke Rod	1
SKA-1571	Pin, Choke Rod Cotter	2
SKD-12030A	Fuel Tank Assembly	1
SKD-12030	Fuel Tank N.S.S.	1
SKA-1661	Welch Plug, Fuel Tank	4
SKA-1685A	Cap Assembly, Fuel Tank	1
A-906	Cap, Tank N.S.S.	1
SKA-8819	Screw, Cap Vent N.S.S.	1
A-924	Gasket, Cap Vent Screw N.S.S.	1
A-920	Spring, Cap N.S.S.	1
MA-2644	Retainer, Spring (Large) N.S.S.	1
MA-2622	Washer N.S.S.	1
A-923	Chain, Cap Anchor N.S.S.	1
A-1073	Spring, Cap Anchor N.S.S.	1
A-925	Gasket, Cap	1
SKA-1571	Cotter Pin N.S.S.	1
SKA-2702A	Cap Assembly, Air Passage Clean Out	1
SKA-2702	Cap, Air Passage Clean Out	1
A-925	Gasket, Cap	1
SKA-2451A	Fuel Strainer Assembly	1
SKA-2451	Flange, Strainer	1
SKA-2379	Element, Strainer	1
SKA-2376	End Cap, Strainer Element	1
SKA-2381	Gasket, Strainer Element	2
SKA-2363	Stud, Strainer	1
SKA-1897	Nut, Strainer Stud	1
SKA-2454	Gasket, Fuel Strainer Flange	1

MODEL KB6F MOTOR PARTS LIST

PART NO.	DESCRIPTION	QUAN.
SKA-1622	Screw, Fuel Strainer Flange	2
SKA-1616	Washer, Fuel Strainer Flange Screw Lock	2
SKA-2575	Valve, Fuel Shut Off	1
SKA-1663A	Fuel Line Assembly	1
SKA-1663	Fuel Line	1
SKA-1665	Nut, Fuel Line Compression	2
SKA-1664	Sleeve, Fuel Line Compression	2
SKA-1638	Elbow, Fuel Line	1
SKA-1976A	Frame & Screen Assembly	1
SKA-1758	Screw, Frame Attaching	5
SKA-9948	Washer, Frame Attaching Screw	5
SKA-12015	Spark Plug Cover	1
SKA-2792	Screw, Spark Plug Cover Attaching	2
SKA-1622	Screw, Fuel Tank to Cylinder	2
SKA-1616	Lockwasher, Fuel Tank to Cylinder Screw	2
SKA-1658	Screw, Fan Housing to Tank	1
SKA-1616	Lockwasher, Fan Housing to Tank Screw	1
SKA-1581	Screw, Fuel Tank to Crankcase	1
SKA-1551	Washer, Fuel Tank to Crankcase Screw	1
SKA-5000A	Magneto Assembly, Complete (Fairbanks Morse)	1
SKA-5000A-1	Frame Assembly, Magneto	1
SKA-5000	Frame, Magneto N.S.S.	1
SKA-5010	Rotor & Shaft, Magnetic	1
SKA-5007	Plate, Bearing & Breaker Support	1
SKA-5017	Screw, Bearing & Breaker Support Plate	4
SKA-5009	Ball Bearing, Rotor (Drive End) N.S.S.	1
SKA-5013	Washer, Rotor Bearing Insulating N.S.S.	2
SKA-5015	Strip, Rotor Bearing Insulating N.S.S.	1
SKA-5005	Snap Ring, Rotor Shaft N.S.S.	1
SKA-5004	Snap Ring, Rotor Bearing N.S.S.	1
SKA-5014	Shim, Rotor Bearing Thrust N.S.S.	2
SKA-5016	Washer, Bearing Seal Rubber N.S.S.	1
SKA-5011	Washer, Bearing Seal Inner Retaining N.S.S.	1
SKA-5012	Washer, Bearing Seal Outer Retaining N.S.S.	1
SKA-5003	Sleeve, Magneto Support N.S.S.	1
SKA-5056	Ring, Support Sleeve Rubber Seal	1
SKA-5002	Gear, Magneto Drive N.S.S.	1
SKA-1564	Key, Magneto Drive Gear	1
SKA-2043	Shim, Magneto Drive Gear N.S.S.	1
SKA-5008	Bearing, Magneto Drive Gear N.S.S.	1
SKA-5001	Seal, Magneto Drive Gear Oil N.S.S.	1
SKA-5044	Ring, Magneto Friction	1
SKA-5043	Screw, Magneto Friction Ring	2
SKA-1754	Wire, Magneto Friction Ring Screw Lock	1
SKA-5037A	Primary Ground Wire Assembly	1
SKA-5053	Coil Assembly	1
SKA-5080	Set Screw, Coil Bridge	2
SKA-12024	Resistor	1
SKA-5051	Wick, Cam Felt	1
SKA-5050	Spacer, Cam Felt Wick	1
SKA-5052	Holder, Cam Felt Wick	1
SKA-5048	Screw, Cam Felt Wick	1
SKA-5049	Washer, Cam Felt Wick Screw Lock	1
SKA-5032	Breaker Point Set	1

MODEL KB6F MOTOR PARTS LIST

PART NO.	DESCRIPTION	QUAN.
SKA-5027	Screw, Stationary Contact Bracket	1
SKA-5029	Washer, Stationary Contact Bracket Screw Flat	1
SKA-5028	Washer, Stationary Contact Bracket Screw Lock	1
SKA-5030	Screw, Bracket Eccentric Adjusting	1
SKA-5040	Washer, Breaker Arm Retaining	1
SKA-5039	Clip, Breaker Arm Retaining	1
SKA-5047	Condenser	1
SKA-5027	Screw, Condenser Mounting	1
SKA-5028	Washer, Condenser Mounting Screw Lock	1
SKA-5027	Screw, Condenser Lead Connecting	1
SKA-5028	Washer, Condenser Lead Connecting Screw Lock	1
SKA-5026	Rotor, Distributor	1
SKA-5046	Pin, Distributor Rotor	1
~~SKA-5045~~	~~Rod, Distributor Lead~~ DELETE	~~1~~
SKA-5025	Brush, Coil Lead	1
SKA-5020	Cap, Magneto End	1
SKA-5021	Gasket, Magneto End Cap	1
SKA-5022	Screw, Magneto End Cap	4
SKA-5023	Washer, Magneto End Cap Screw Flat	4
SKA-5024	Washer, Magneto End Cap Screw Lock	4
SKA-1615	Screw, Magneto Support Sleeve	2
SKA-8240	Washer, Magneto Support Sleeve	2
SKA-1754	Lockwire, Magneto Support Sleeve Screw	1
SKC-9887	Shield, Magneto End Cap	1
SKA-9891	Cover, Magneto End Cap Shield	1
SKA-12032	Ground Strap, Shield to Cover	1
SKA-9965	Screw, End Cap Shield Cover	2
SKA-9948	Lockwasher, Internal-End Cap Shield Cover Screw	3
SKA-1496-1	Plate, Magneto Cover	1
SKA-1662	Screw, Magneto Cover Plate	4
SKA-10029	Washer, Magneto Cover Plate Screw	4
SKA-12025	Spark Champion XEJ7J	2
SKA-12029A	Ignition Wire Assembly, Spark Plug	2
SKA-12028A	Ignition Wire & Shield Assembly	2
SKA-12022	Elbow	2
SKA-12019	Terminal Connector	2
~~SKA-9894~~	Bushing SKA-12033	2
SKA-9944	Lockwasher, Shield Bushing	2
SKA-9955	Nut, Shield Bushing	2
SKA-12031	Grommet	2
SKA-10002	Shorting Switch & Terminal Shield Assembly	1
SKA-9955	Nut, Toggle Switch to Fan Housing Lock	1
SKA-9944	Washer, Toggle Switch to Fan Housing Lock Nut	1
SKA-9933	Fitting, Shorting Wire-Magneto	1
SKA-9934	Washer, Fibre-Shorting Wire Fitting	1
SKA-9938	Lockwasher, External	1
SKA-1612	Washer, Bakelite	1
SKA-1611	Bushing, Terminal Shield	1
SKC-4000A	Governor Assembly	1
SKC-4000A-1	Housing Assembly	1
SKC-4000D	Housing	1
SKA-4009	Oil Cup, Housing	1
SKA-4001	Bearing, Drive Shaft	1
SKA-4013	Oil Seal, Drive Shaft	1
SKA-4006	Shaft, Rocker	1
SKA-4002	Bearing, Rocker Shaft	2

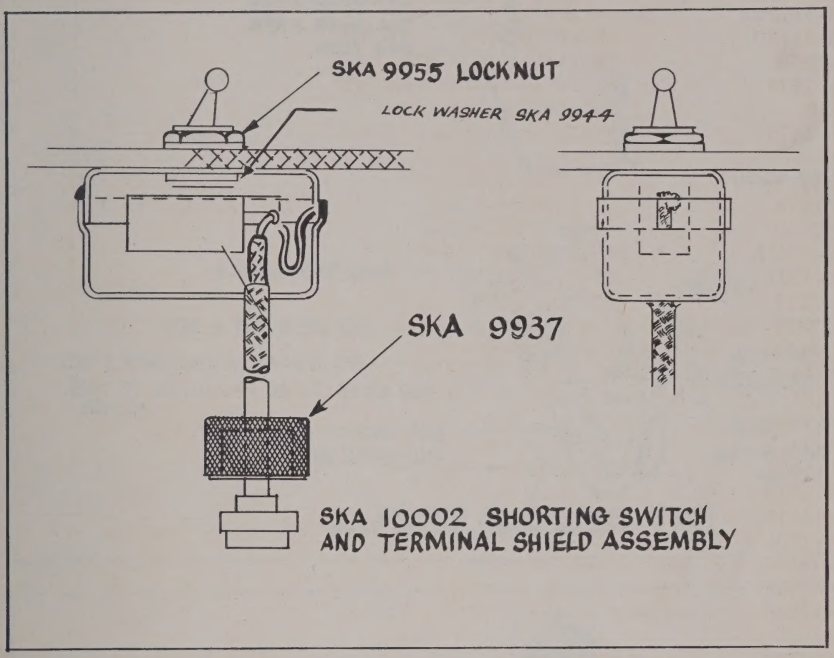
PART NO.	DESCRIPTION	QUAN.
SKA-4011	Oil Seal, Rocker Shaft	1
SKA-4005	Yoke, Rocker Shaft	1
SKA-4010	Screw, Rocker Shaft Yoke	2
SKA-1785	Washer, Rocker Shaft Yoke Screw Lock	2
SKA-4004D	Lever, Throttle	1
SKA-4007	Pin, Throttle Lever	1
SKA-1644	Plug, Oil Level	1
SKA-4012	Plug, Welch	1
SKA-4003	Pin, Flange Dowel	2
SKA-4015DA	Flange Assembly	1
SKB-4015D	Flange	1
SKA-4016A	Drive Shaft Assembly	1
SKA-4016	Shaft, Drive	1
SKA-4022	Bearing, Yoke Thrust	1
SKA-4037	Sleeve, Yoke Thrust	1
SKA-4033A	Spider & Hub Assembly	1
SKA-4033	Spider	1
SKA-4034	Hub, Spider	1
SKA-4036	Pin, Spider Hub Groove	1
SKA-4001	Bearing, Drive Shaft	1
SKA-4021	Oil Seal, Drive Shaft Bearing	1
SKA-4018	Gear, Drive	1
SKA-1564	Key, Drive Gear	1
SKA-4020	Ring, Drive Gear Snap	1
# SKB-4035	Weights, Governor	2
SKA-4017	Pins, Governor Weight	2
SKA-4030	Gasket, Housing To Flange	1
SKA-4032	Screw, Housing To Flange	4
SKA-1551	Washer, Housing To Flange Screw	4
SKA-4023	Lever, Adjusting	1
SKA-4039	Washer, Adjusting Lever Tension	1
MA-3992	Screw, Adjusting Lever	1
SKA-4025	Locknut, Adjusting Lever Screw	1
SKA-4024	Cotter Pin, Adjusting Lever	1
SKA-4028	Eye Bolt	1
SKA-4029	Locknut, Eye Bolt	2
SKA-4027	Spring, Governor Control	1
SKA-1652-005	Gasket, Governor Mounting (.005 Paper)	1
SKA-1652-015	Gasket, Governor Mounting (.015 Paper)	2
SKA-1652 B	Shim, Governor Mounting (.010 Brass)	1
SKA-1581	Screw, Governor Mounting	4
SKA-1947	Washer, Governor Mounting Screw	2
SKA-8854	Sealing Ring	1
SKA-1616	Washer, Fan Housing to Governor Screw	2
SKD-9941	Fan Housing	1
SKA-1659	Screw, Mounting	2
SKA-1660	Washer, Mounting Screw	2
SKC-2535A	Fan Assembly	1
SKA-1651	Nut, Fan Hub	1
SKA-1370	Washer, Fan Hub Nut	1
SKA-1643	Key, Fan Hub	1
SKA-2629	Gasket, Fan Shroud Hub Keyway	1
SKC-1542	Screen, Fan Housing	1
SKA-8710	Cover, Fan Housing Cylinder Cutout	1
SKA-1662	Screw, Fan Housing Cylinder Cutout Cover	3
SKA-10029	Washer, Cutout Cover 9948	3
SKB-1121DXA	Starter Assembly, Complete (Magnapul)	1
SKC-1121DXA-1	Housing Assembly, Starter	1

Weights Available in Pairs Only.

MODEL KB6F MOTOR PARTS LIST

PART NO.	DESCRIPTION	QUAN.
SKC-1121DX	Housing, Starter N.S.S.	1
A-1014	Guide, Starter Rope	1
SKA-1728	Pin, Starter Spring Anchor	1
SKB-8172DA	Sheave Assembly, Starter	1
SKB-8172D	Sheave, Starter N.S.S.	1
MA-2579	Bearing, Sheave Hub	1
SKA-1678	Screw, Sheave Reinforcing	4
A-996	Pin, Spring Anchor	1
SKA-1776	Pin, Pawl Retainer N.S.S.	1
SKA-1950A	Shaft Assembly, Sheave	1
MA-2925A	Pawl Assembly, Starter	2
MA-2925	Pawl, Starter	2
MA-2926	Magnet, Starter	2
SKA-1591A	Cable Assembly, Starter	1
SKA-1591	Cable, Starter N.S.S.	1
MA-2215	Anchor, Cable	1
MB-2078	Handle, Cable	1
MA-2190	Bushing, Cable Handle	1
SKA-1471	Plate, Starter Friction	1
A-1049	Spring, Starter Friction	1
SKA-1597	Nut, Sheave Shaft Lock	1
SKA-1595	Washer, Sheave Shaft (Inside)	2
SKA-1882	Washer, Sheave Shaft Lock	1
SKA-1911	Key, Sheave Shaft	1
SKA-1316	Ratchet, Starter	1
SKA-1595	Washer, Ratchet Thrust	1
SKA-1484	Stud, Starter Support	1
SKA-1598	Screw, Starter Mounting	3
SKA-1616	Washer, Starter Mounting Screw	3
SKA-1924	Name Plate	1
SKA-8143	Fuel Instruction Plate	1
SKA-1980	Starter Instruction Plate	1
SKA-1885	R.P.M. Warning Plate	1
SKA-1813	Spark Plug Cover Warning Plate	1
SKA-1671	Drive Screw, Plate	18

FIGURE 10



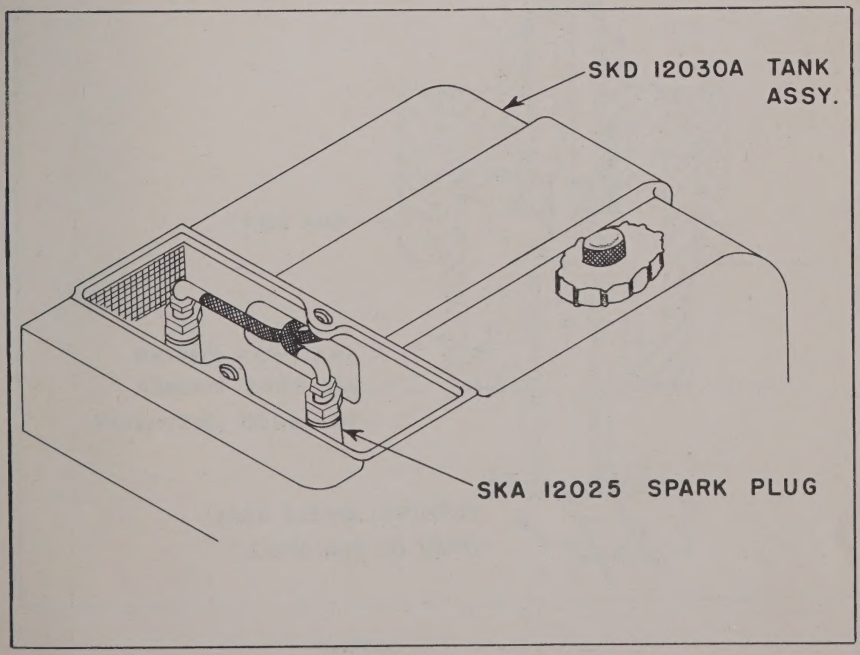
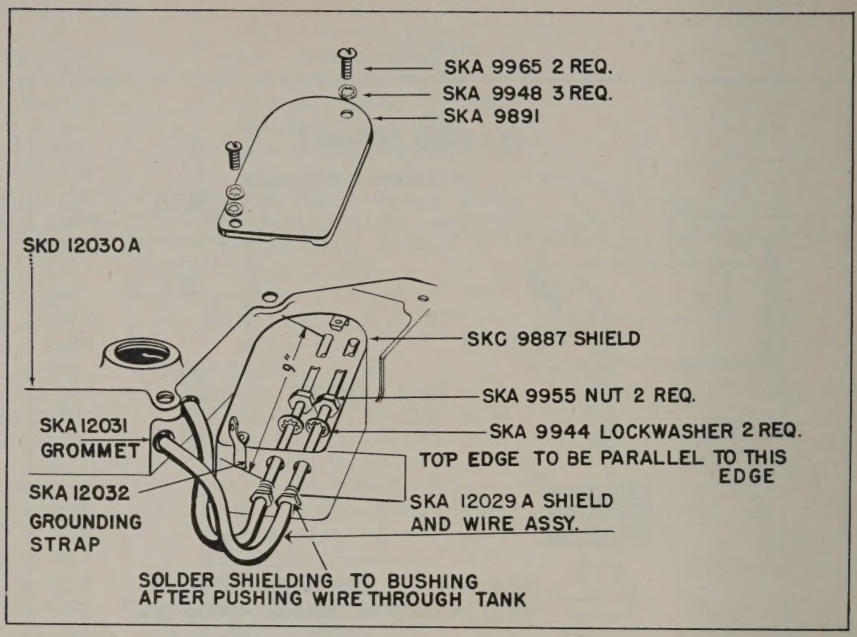


FIGURE 11

FIGURE 12



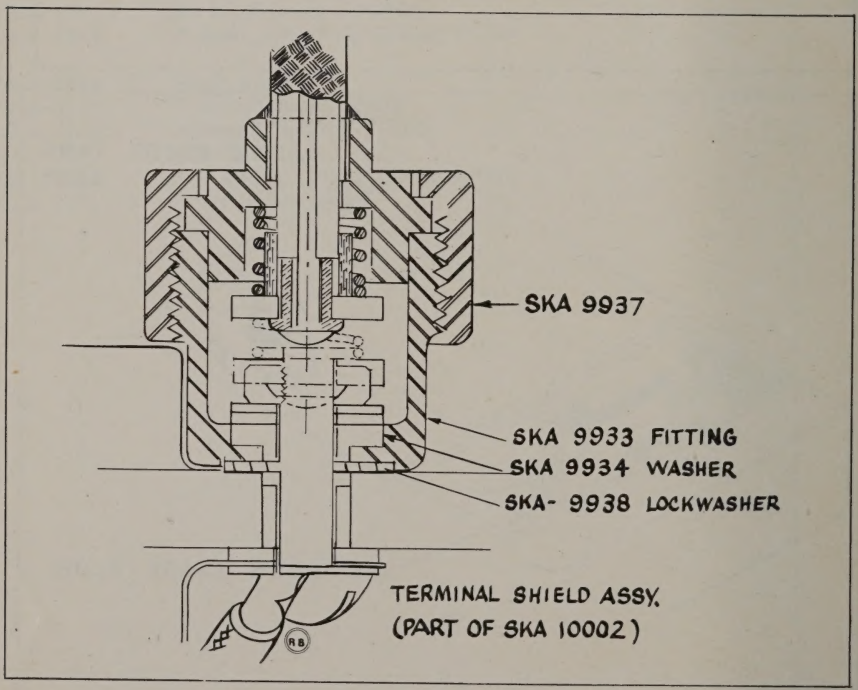


FIGURE 13

32.33.2

SURPLUS

-1 shelf

E 56-22